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NO. 20

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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RISE AND FALL OF LAKE LEVELS.

The Weather Bureau, with a view to making its operations as beneficial to lake marine interests as possible, has been experimenting to see if forecasts of high or low water at different parts of the lake system can be made with sufficient accuracy to be useful. Mr. Norman B. Conger, of that Bureau, stationed at Detroit, is quite sanguine of the results, and believes that when the system is perfected the probable depth of water in the Sault and in the rivers and shallow places in the lakes can be forecast with tolerable accuracy. The forecasts are to be based on the direction of the wind and its veloc-

ity to which all the variations in the depth of the water are attributable. The master of a vessel clearing from Duluth can be informed whether he is likely to have a minimum or maximum of water when he reaches the Sault, and load his vessel accordingly. If he is at Buffalo and a southwest wind is indicated for the next twenty-four hours, the forecast will be for shallow water at the mouth of the Detroit river, up that stream as well. The Weather Bureau also desires that a copy of the chart on currents recently published be placed in the hands of every vessel master on the lakes, and asks those not already supplied will call or apply in writing to Mr. N. B. Conger, of Detroit.

LIMITING THE CATCH OF SEALS.

Secretary Carlisle in an official communication to J. B. Crowley, special agent in Chicago for the seal islands of Alaska, has limited the catch of seals during the present season by the North American Commercial Co. to 7,500, but if, in the judgment of agent Crowley, the condition of the herds will warrant such action, the number may be increased to not exceed 20,000 seals in all.

LAKE ERIE-ST. CLAIR CANAL.

The lower house of the Dominion parliament has passed the charter for the new Lake Erie and Lake St. Clair Ship Canal Co. The upper house is expected to act in a few days. The charter allows the company to be capitalized at \$5,000,000, and bonds for that amount will be issued. It will take a couple of years and cost about \$4,000,000 to dig the canal. Mr. Henry says no trouble is anticipated in floating the bonds. Assurances have been received that most of them can be sold in New York.

PILOT CHART OF THE LAKES.

Commander Sigsbee, the naval hydrographer, has completed a pilot chart of the Great Lakes, which is hereafter to be issued regularly by the Navy Department. The chart is handsomely engraved and gives a great amount of information not heretofore accessible to navigators of the lakes. It will be distributed gratuitously from the central and branch hydrographic stations about the end of this week. Among its features are correct curves of variation, light houses, depths of water in channels, weather conditions, havens of safety, standard time divisions, rules for using oil in storms and many other details of practical use to fresh water mariners.

SOLIDIFIED PETROLEUM FOR FUEL.

M. Maestracci, of the French navy, has devised a method of solidifying petroleum and forming it into briquettes. His plan is to mix with each liter of petroleum 150 grammes of trituated soap, 10 per cent of resin and 333 grammes of caustic soda. This mixture is heated and kept well stirred while it is being heated. At the end of about forty minutes solidification commences and if any tendency to overflow is shown some drops of soda are thrown in. When the mass is nearly solid, it is poured into moulds so as to make briquettes, which after being placed in an oven for from ten to fifteen minutes are allowed to cool. With the addition of 20 per cent of wood shavings and 20 per cent of clay or sand, firmer and more lasting briquettes result.

Trials have been made with this fuel on tugboats at Marseilles with the result that an equal weight of briquettes produced three times the heat of ordinary coal; while in one instance, with a specially constructed furnace, one kilog. of solidified petroleum was found to equal four kilog. of coal.

WELDLESS STEEL CHAINS.

The London newspapers contain an interesting account of a newly invented process by which a Birmingham manufacturer has succeeded in making weldless steel chains. Hitherto it has been found impossible, it is said, to make steel chains without heating the metal, or to produce steel links with a stud or cross piece. These difficulties are now reported to have been solved by a number of ingenious mechanical devices. The chain is made from a steel bar of cruciform section, and of the greatest length obtainable. This bar is put through a series of machines, in each of which pieces are punched out, so that after five operations the links are perfectly formed, but are still connected together at the point where the inner side of the bow of one link crosses that of the other. In fact, the bar represents a rigid chain, but on being passed through another machine it comes out as a roughly formed but perfect chain with separated links. The chain then undergoes three more operations, in which it is rectified, rounded and finished ready for use. The process is a cold one, so that there is no deterioration of metal by heating, the only heat applied being near the end of manufacture, when the chain is annealed in an oven for a short time. Owing to the limited length of the bars, the chain has to be made in shorter sections than is now usual—namely, fifteen fathoms—and eventually coupled up by special links, which are made stronger than the chain itself. These chains, which are suitable for general use, are produced in various sizes, from one-half inch down. Some of the one-half inch chains made from steel having a tensile strength of 24 tons per square inch, were tested at Lloyd's proving house, and broke at 163 per cent. over the admiralty test. Being produced by machinery, all the links in each section of the chain are exactly similar. There is also a great saving in weight.

LOOKOUT FOR A CLEAN BILL OF HEALTH.

United States Supervising Surgeon Wyman has issued the following letter of instruction to the local boards of health along the lakes:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON,
GENERAL MARINE HOSPITAL SERVICE,
WASHINGTON, D. C., May 10, 1894.

To Local Quarantine or Health Officers of the Various Ports Located on the Great Lakes:

I would respectfully inform you that owing to the prevalence of small-pox in the city of Chicago, medical officers of the Marine Hospital Service have been stationed at that port for the purpose of vaccinating the crews of all vessels leaving the port of Chicago for other ports in the United States.

To prevent the spread of the disease to other citizens on the great lakes, art. 1, par. 1 bb., Marine Quarantine Regulations of the United States, requiring the inspection of all vessels from ports where small-pox is prevailing prior to their entry, should be enforced.

Very Respectfully yours,

WALTER WYMAN,
Supervising Surgeon General M. H. S.

All vessels leaving Chicago must show a clean bill of health from the Marine Hospital Service before being allowed to enter port, and any vessel found without a clean bill will be reported and subjected to inspection. This, of course, will entail considerable detention and other inconveniences so that shipmasters will to well to closely observe any changes made in their crews as well as being fully armed with a clean bill of health before leaving port.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

P. H. Fleming on Tuesday chartered the steamer Germanic and barge Emma C. Hutchinson for corn to Buffalo at 1 1/4 cents.

The fine steamer Wm. P. Ketchum arrived Saturday from Washburn with 1,150,000 feet and her consort, the George B. Owen, with 1,000,000 feet of lumber.

Capt. John Prindiville chartered the steamer Saint Paul for 40,000 bushels of corn to Port Huron at 1 cent; the steamer Inter Ocean for 53,000 bushels of corn to Buffalo at 1 cent.

John Cross, one of the crew of the small schooner Transfer, lying at O'Conner's dock, fell from aloft Friday morning and was badly injured. He was conveyed to the marine hospital.

The V. O. T. Co.'s tug Mike Shields has been hired by the marine hospital service. Dr. Hamilton and his assistants are busily employed night and day vaccinating the crews of all vessels leaving this port.

The whaleback passenger steamer Christopher Columbus will arrive here June 10th and commence running excursions on the 15th of that month. She will run from a dock at the foot of Randolph street viaduct.

At Miller Bros.' shipyard the tug H. S. Sill is in dock for a general overhauling, re-calking and re-ironing; the steamer Belle, Fitzsimmons & Connell's new tug Tacoma, and the Racine Dredging Co.'s dredge for a thorough overhauling and re-calking.

Elphicke & Co. chartered the steamer Escanaba for 50,000 bushels of corn to Kingston at 2 1/2 cents free of canal tolls. This is the Escanaba's first load this season. After discharging her cargo at Kingston she will go to Cleveland and receive a new boiler.

Last Thursday afternoon the schooner Ralph Campbell when going up Chicago river in tow of the tug Tom Brown, collided with Dearborn street bridge and carried away her jib boom, bowsprit and head gear and did considerable damage to the rail and sidewalk of the bridge.

Wrecking master Cyrus H. Sinclair, of Chicago, telegraphed from Alpena Tuesday that he expects the schooner American Union will be released from the reef at Thompson Harbor Wednesday, weather permitting. It is feared, however, that the schooner will be a constructive total loss.

The city authorities have chartered the V. O. T. Co.'s tug Black Ball No. 2. They are having her fitted with tanks to be filled with high test petroleum oil to be used as fuel, by the use of which the authorities hope to demonstrate how the smoke nuisance created by tugs in Chicago river may be abated.

The schooner Surprise arrived Monday with cedar from Green Bay. She had been 25 days on the trip. She lost part of her cargo on Green Bay and picked it up again. She was leaking so badly that Capt. Clark brought along some extra men in addition to his crew to assist at the pumps.

Last week notice was given to the employees of the tug companies here that a cut of 10 per cent. would be made in their wages. A largely attended meeting of captains, engineers, firemen and linemen was held on Sunday afternoon when the subject of the cut in wages was discussed and a majority of those present decided to accept the decrease in their wages until business improves.

There is an improvement in grain and lumber freights and charters are not so scarce at the low rates offered.

WILLIAMS.

DULUTH, MINN.

Special Correspondence to The Marine Record.

Capt. A. P. Woods is managing the Wilson fleet here this year.

Eleven vessels were loaded at Two Harbors ore docks Friday, 25,000 gross tons being the cargoes. It was the biggest day's work ever done at the dock.

The whaleback Thomson came in Sunday after her bout with the Curry in Lake George. Her damage will be about \$4,000 and she will be out next week.

Lumber shipments from the head of the lakes are very large just now, especially from Ashland. There 30,000,000 feet had been shipped prior to the date when in 1893 the first cargo of the year was sent out. Whether this record will keep up or not is, of course, a good deal of a question. About 15,000,000 feet have been shipped out of Duluth in the same time. Charters are being made at the regular rate of \$1.75 a thousand, head of the lakes to foot of Lake Erie, the latest being the steamer Arizona and two consorts. They will carry nearly 3,000,000 feet. Lumber shipments through the Sault canal to May 31st will foot up at least double the total to the same date last year, and this not only from such ports as Duluth and Ashland, but also from lower Lake Superior points, such as Ontonagon, where the

Diamond Match Co. is sawing 100,000,000 feet, or five times its last year's cut.

One of the most interesting and decided signs of the times, so far as the head of the lakes is concerned, is the late influx of vessel men as residents. This has been going on, more or less, for two or three years, but has lately received quite an impetus, and there are now living at Duluth and Superior not far from one hundred masters, engineers and owners of lake craft with their families. Most of these men, including all the owners and agents, reside in Duluth, while a few of the whaleback officers live on the Superior side. There are several reasons for this aside from the great and constantly increasing figure the head of the lakes cuts in tonnage, a figure that very few persons realize or believe, outside those directly interested. Of course, the increase in tonnage originating here and the shipyards have much influence, but there is work all winter in mills or engine shops or in the woods for the man whose vessel is tied up in December, and there is opportunity for securing houses by small payments, which will rapidly grow more valuable, that does not exist in the older and more settled eastern cities. Prices of living have been coming down rapidly of late and food supplies are cheaper than in many places.

The whaleback passenger steamer Christopher Columbus is to be entirely refitted this season for use as a special excursion boat at Chicago, says Capt. McDougall, and the barge company intends to spread itself on the job and make the Chris. the finest on the lakes. "What is the use," said the Captain yesterday on his return from the east, speaking of the quarantine regulations on Chicago vessels, "of persecuting the poor shipping industry when there is hardly business enough to pay the running expenses of the vessel? The whole number of persons leaving Chicago daily on all classes of boats is less than 300; those leaving on trains number nearer 30,000. The boats must be tied up and wait for a rigid inspection and for certificates of health before they can leave port, while the trains, which carry a thousand times more liability of spreading the smallpox, run in and out unmolested. It is just another example of the abuse which the shipping industry receives at the hands of the dear public and office seeking politicians. It is not alone amusing, but perplexing that any injury done to any vessel pleases the many." When asked about the whaleback tug, which it was reported was to be built in Chicago, Capt. McDougall said that some Chicago newspaper was building that, and that he knew nothing about any such plan.

DETROIT, MICH.

Special Correspondence to The Marine Record.

Sunday night sailings of the D. & C. Line boats will begin May 20.

J. & T. Hurley could not coal their steamer Majestic at their Detroit dock this week and had to take her to Windsor for a supply of fuel.

Fred Goodrow, mate of the steamer Yuma, who fell into the hold of the steamer while at Fairport, O., and broke his leg, is at the United States Marine Hospital here and is getting along finely.

As the tug Schenck was passing up off Grosse Pointe, with the barge Dunford in tow, the steamer Arthur Orr passed so close to the Dunford as to cause her to sheer and run into the Orr. Damages to the Dunford are about \$300. About fifteen feet of the Orr's rail was broken.

Supervising Inspector Westcott, of the steamboat inspection service, has no idea that the secretary of the treasury will decline to appoint the person named by the designating board, nor does he believe that protests derogatory to the board's appointee will have any effect. Hence, Capt. Sydney Millen, son of Capt. James Millen, will succeed Inspector Coyne.

The following letter from the general manager of the Northern Steamship Co. to D. W. H. Moreland, general agent, may be of interest to a number of persons who seek free transportation: "It is my desire that during the coming season you do not forward to this office any applications that may be made to you for transportation on the vessels of this company, either freight or passenger. You are hereby authorized to state positively in reply to all applications that may be made to you that in no event will any free transportation be granted. This rule will be enforced in every particular; no exception being made for any one."

The little schooner Nina, which left Milwaukee April 26, on a voyage to Stockholm, Sweden, via. the lakes, Erie canal, Hudson river and the ocean, reached here this week. Capt. Adolph Frietsch, her builder and owner, is the sole occupant of the craft. The Nina is 47 feet long, 9 feet beam, and is strongly built. Her cabin has a complete cooking outfit and contains a small dining table, a writing table, a folding berth and lockers. Capt. Frietsch expects to reach Stockholm before the end of summer. He was born in Abo, Finland, 35 years ago and has been sailing ever since he reached

the age of 8 years. He has a wife and four children, who are living in Milwaukee. Lake Erie ports will be visited in turn after he leaves here.

The case of Williams, Davis, Brooks & Co., the wholesale druggists, was disposed of in the United States Court by Judge Swan. They were indicted by the grand jury for improperly shipping a small quantity of dangerous acid by boat among other freight. It was shown to the satisfaction of Judge Swan that there was no intent to evade the law; that the shipping clerks of the firm who packed the acid were unaware that it was to be sent by boat; that the firm ordering the goods by boat was ignorant of the law, but that since this complaint was made against them Williams, Davis, Brooks & Co., had notified all their customers by circular. More as an admonition than a punishment, the Judge imposed a fine of \$75 and costs. The suit was brought on complaint of the Western Transit Co., and should serve as a warning to all shippers.

Commodore E. D. Potter, of the Toledo Yacht Club, will soon have one of the finest racing yachts on the lakes. Designer O. M. Hepburn, of the Wyandotte Boat Co., is building her. The yacht is to be a keel boat with a comfortable cabin. Her dimensions will be 50 feet 6 inches over all, 34 feet 6 inches on the water line, 14 feet beam and 8 feet deep. She will draw 5 feet 6 inches of water and she will have large sail area. The hull is of steel and the yacht will be the finest of her type ever built in western waters. Every yachtsman who has seen her declares her a beauty and Mr. Hepburn feels very proud of his work. He has prepared a plan of her outfit of sails and rigging which will be a sloop rig, and they will be made by J. C. Goss & Co. The new yacht will be named the Sultana, and she will fly the colors of the Toledo Yacht Club. Beside the Sultana Mr. Hepburn is building a beautiful vapor launch for Wm. Smith, of Wyandotte. This boat, which is about completed, is equipped with a two-horse Sintz gas engine and a Sintz patent reversing propeller. She will have two steering wheels, one beside the engine and the other forward. All her fittings will be of brass and nickel plate and her speed will be about seven miles an hour.

CLEVELAND, O.

Special Correspondence to The Marine Record.

The handsome steam yacht Say When owned by the Hon. W. J. White is again in commission.

A meeting of the finance committee of the Lake Carriers Association will be held in the offices of the president, Capt. James Corrigan at 3 P. M. Thursday.

Samuel Nolan, whose sister desired to learn of his whereabouts, saw her request recently in this port letter and says that he will at once communicate with her.

Mr. Hanna's steam yacht Comanche is being fitted out for an early summer's cruise to the Labrador coast. Her principal cruising ground last summer was around the West Indies.

Mr. Thos. Quayle, Mr. Wilson and Chaplain Jones of the Floating Bethel, have returned from a tour to the Pacific Coast, much improved after their two month's enjoyable vacation.

Capt. Vance, of Milwaukee, ex-Congressman F. W. Wheeler and Capt. F. D. Herriman, manager of the lake marine department of the Bureau Veritas classification society, were among the visitors in marine circles at this port during the week.

The final shipment of engines and boilers for the new steamer building at the yards of the Chicago Ship-Building Co., is about ready to be forwarded from the works of the Cleveland Ship Building Co. The vessel is now well along toward completion and it is expected to launch her on May 25.

After being dry docked and opened out it is found that the fire boat requires a thorough rebuild; in fact so much of a rebuild is required that figures on a new hull are being advertised for. Dry rot is the difficulty and no one accustomed to handle vessel property seems surprised at the way the little vessel has opened out.

The Nickel Plate, N. Y. C. & St. L. railroad, have issued this week a large 8-page illustrated pamphlet showing the several summer resorts along their route. Linwood Park, Vermillion, O., Dover Bay and Oak Point are each Nickel Plate tributaries and are shown as such in very handsome cuts in the brochure.

The Cleveland Tug Co. evidently intend to give the business of facilitating vessels in and out of port their full and undivided attention. The new steel tug L. P. Smith will be ready for service early next week and the two other new tugs now building will be completed by the middle of June. George Elsey, Jr., Capt. Dahlke and Capt. Tom Hughes are in the new line.

The Detroit and Cleveland Steam Navigation Co. announces that in connection with its Put-in-Bay route the steamer City of the Straits will also stop at Lakeside on every Monday and Saturday during July and August, commencing July 14. In connection with the

Put-in-Bay and Lakeside trips the steamer City of the Straits will also give evening lake rides three evenings per week.

The steel steamer S. S. Curry is being repaired at the yards of the Globe Iron Works Co. About fifteen plates and as many frames are bent and broken, though some of the plates can be re-rolled and put back again. After a thorough survey it was found that damages were not nearly so great as had been anticipated at the time of her collision and she will be ready for service again in about two weeks.

A special meeting of the local branch of the Ship Master's Association, was held on Saturday, to take appropriate action on the death of Capt. Edward Kelly. President C. E. Benham appointed Capt. James Stone, H. Cummings and Fred Boothman a committee on resolutions. The draft submitted by the committee, expressive of the high esteem in which the deceased was held, was adopted.

Mr. D. C. McIntyre, local manager of the D. & C. Line, has returned from Alvington, Ont., whither he was called by the death of a younger brother, Duncan McIntyre. The deceased was with the Detroit & Cleveland Steam Navigation Co. as lookout on the steamer City of Mackinac, until about a year ago, when he was obliged to leave by an attack of typhoid fever, which later developed into consumption and terminated fatally.

Capt. James Stone in a letter to supervising inspector Westcott in regard to passing signals in a fog, which are prohibited by the pilot rules, suggested that if it is dangerous to rely on the direction from which passing signals come, why may not fog signals themselves be as deceptive? In this connection he remarked that if it is likely the signal comes from another direction than it seems to come from, it would be a good idea to steer directly for the sound, so as to be almost certain to miss the approaching craft.

Capt. John Rice, of Buffalo, representing the underwriters, and Capt. C. E. Benham, of this port, on the part of the owners, held a survey on the schooner Chippewa on Tuesday at Ashtabula and assessed the damages caused by the collision between the steamer Mariner and Chippewa in the "Soo" river at \$300. The Chippewa was going up light when the collision occurred. Had she been loaded her damages would have been much more extensive. The schooner is now on a Lake Superior trip and final repairs will not be made till later.

The life-saving crew made their first season attempt at rescue on Monday, the lookout reporting a fishing boat dismasted about two miles to the westward of the piers. It has frequently happened in the past that Capt. Philip Scheid was on hand to save life and on this occasion he had the V. O. T. tug William Kennedy in the vicinity. In spite of a nasty sea Scheid got a line to the fish boat and towed her into port, meeting the life saving crew bound out to the rescue. Philip Scheid deserves recognition from a humane department for his gallant and skillful acts of heroism at this port.

The lake underwriters' committee has appointed Capt. A. R. Manning supervising adjuster, and all adjustments will go to him for approval before settlements are made. No further losses will be paid on estimates from preliminary damage surveys, but only upon the presentation of the repair bills. It is charged that owners frequently received pay for damages and then neglected to repair. All wrecking companies will be required to furnish their tariff of charges for tugs and wrecking appliances to the supervising adjuster. Steamers having consorts in trouble will not be allowed heavy salvage bills for towing them to ports of repair.

J. A. Redington, one of the pioneer vessel men on the lakes, died on Friday last and was buried on Tuesday. Mr. Redington began his career in the lake marine in 1842, when he became a clerk in the old North Star. Later he was part owner of the schooner E. C. Roberts and the barge William Jones, and soon afterwards he built the schooner Nellie Redington. He was also interested in the propeller Manhattan, the first boat that sailed in Lake Erie and Lake Superior. It was in the days previous to the construction of the "Soo" canal and the Manhattan was transported around the rapids in the St. Mary's river, a distance of half a mile over land, and then launched into Lake Superior. Mr. Redington early appreciated the value of upper lake commerce, and it was partly through his efforts that this port became the great distributing point for iron ore that it is.

The C. & B. Line announce that about June 1st they will commence running their steamers State of Ohio and State of New York to Beach Park, Lorain, O., three times every week during the summer months. The company are highly gratified at the liberal manner in which this popular resort was patronized by Cleveland people last season, and the numerous inquiries already received from Sunday Schools and societies who desire to take a day's outing at the park this summer indicate that the trip will be even more popular this year. Beach

Park is only two hours' ride from Cleveland, giving the excursionist four hours on the grounds and returning home before six o'clock in the evening. The Saturday night excursions to Niagara Falls will also be resumed early in June. This trip allows the entire Sunday for sightseeing at Buffalo and the Falls, returning home in time for business Monday. Anyone who has not visited "America's greatest natural attraction" should certainly take advantage of these cheap, enjoyable trips.

Fuel is a little easier at Ohio ports this week, on account of the railroads releasing cars held on the track, although it cannot be said that the miners' and mine owners' convention now being held at this port promises an early settlement of the difficulty—as the conflicting interests still seem to be wide apart.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

Several vessel owners are planning to experiment with crude oil as fuel on their steamers during the coal famine. The necessary fittings will cost but little. Coal for fuel has become a scarce commodity here. The price is nominally \$4, but vessels have hard work to get enough at that figure to change ports with.

The Light-House Department has placed a new buoy on the east side of the channel at Horseshoe reef, near where the dredge is at work. This buoy is important because it marks a shoal with twelve feet of water on it, but there is deep water clear up to the buoy. The work of clearing off the remains of this shoal is being carried on as rapidly as possible and will be completed in about two months.

At the last hearing of the Lockwood immigration bill in committee the vessel owning interests of the lakes were not represented. The bill was laid over for one week and it is now expected that the Lake Carriers' Association will enter into a discussion of section seven which restricts Canadian labor on American vessels, and particularly in that portion of it that makes it a misdemeanor for any vessel owner to ship Canadian seamen who have not resided in this country for six months prior to their shipping. A penalty of \$500 or not less than \$300 is provided. Immigration Inspector De Barry, who was instrumental in the framing of the bill, states that Mr. Farnsette will go to Washington in behalf of the Seamen's Union. Mr. Farnsette is a man of wide knowledge of the Alien Contract Labor law and probably one of the best posted men on marine matters in the United States. He will argue in favor of the measure in the interest of American sailors. Inspector De Barry does not think that any effort to have section seven stricken out will meet with favor as the bill would then take away the protection to American sailors.

CONWAY, MICH.

Special Correspondence to The Marine Record.

The new steamer named in honor of the late president of the Grand Rapids & Indiana Railroad—the W. P. Hughart—was successfully launched on Friday afternoon, in Crooked lake. Great interest is manifested in the success of the queer looking craft, as nothing approaching her build ever sailed upon the lakes before.

Her dimensions are 75 feet in length and 17 feet beam, the engines are two high pressure of about fifty horsepower. Her accommodations will be ample for from 150 to 200 passengers. The rate of speed will be from nine to ten miles an hour, while she will draw when loaded but 22 inches of water. Owing to the difficult and tortuous character of Crooked and Indian rivers, many boats built for the inland route service have been at least partial failures, owing to the shallow water through which they must pass.

In the plans for the new boat advantage has been taken of past failures and the result, it is hoped, will prove a perfect success. The little steamer will be in charge of Capt. Chas. B. Woodbury. Val G. Olliver and William Seshar are the builders.

The beauties of the inland route to Mackinaw are well known, and should the new boat demonstrate the fact that passengers are not expected to watch out and push off with poles at the short bends in the river, to keep off the banks, the W. O. Hughart will be one of the most popular boats.

MORE CANALIZING.

Representative Ikirt is taking an interest in the ship canal propositions to connect Lake Erie and the Ohio river. On Saturday last he introduced a bill more general than the others now being considered by the committee on railways and canals. It provides as follows:

"That the Secretary of War be and is hereby authorized and directed to appoint a corps of engineers, whose duty it shall be to accurately survey and make estimates of the cost of construction of a ship canal to connect Lake Erie with the Ohio river.

"It is further provided that said estimates are to contemplate a waterway of sufficient capacity to transport

the tonnage of the lake to said river; and that said survey shall start from some point at or near the city of Cleveland and follow the course found most practicable and direct to the Ohio river; and that the sum of \$30,000, or so much thereof as may be necessary, is hereby appropriated to defray the expenses of such survey and estimates."

REPORTED BY THE LOOKOUT.

The new barge built by Alexander Anderson for N. & B. Mills, of Marysville, was launched at Marine City Thursday afternoon. She is 241 feet keel, 41 feet beam and 22 feet hold. She was named the Pewabic and will be one of the Gogebic's tow.

Capt. Matthew Lightbody, of the Detroit and Cleveland steamer City of Alpena, says that as he was passing down Detroit river a few nights ago he heard the splashing of oars as he came opposite Wyandotte, and fearful of running down some boat, turned on the electric search light, which showed him a white man and two Chinese in a skiff, pulling with all haste toward the American side.

The West Superior longshoremen's union has appointed an arbitration committee. The officers say that the supply of labor at the head of the lakes is decreasing. The several docks in Duluth have contracted the handling of their freight by the ton, which leaves the Omaha dock in Duluth, and the Eastern Minnesota dock across the bay, as the only employers of day labor, so far as flour and merchandise are concerned.

The work of erecting the four range lights at Grosse Isle and Ecorse is to be commenced at once under the superintendence of C. C. C. Bartlett, engineer of light-house construction in the tenth district, which includes that portion of the lake system below the west bank of the river Rouge. The foundations for the Grosse Isle lights have already been built, and an appropriation of \$5,000 by Congress will allow the work to proceed. A beacon light will also be constructed in front of Mamajuda light. The engineer expects to have the lights finished by July 1.

The Canadian tug Kittie Haight was seized on Saturday by the custom house officials at Port Huron for violating the laws by trading from one United States port to another without stopping at a Canadian port in the meantime. The government officers have been instructed to compel the Canadian boats to comply with the law in every respect and to seize all vessels violating it.

Joseph Walker, in charge of a scow for Dunbar & Sullivan dredges at the St. Mary's Falls canal, was drowned on Tuesday morning. The scow had been towed away by the tug Spalpeen, but filled and sank before Walker could dump its load. He attempted to swim to the tug, but went down before reaching it.

James O. Gallagher has been appointed first keeper of the light station at Squaw Island, vice Joseph A. Martin, resigned.

The new tug built by Rieboldt, Wolter & Co., for the Sheboygan Tug Boat Line, was successfully launched last week. The new tug has been christened the "Satisfaction." She will do towing at Sheboygan, Wis. in connection with tug Sheboygan and will go into commission about June 1st.

Capt. John Sullivan with the tug Reginald has just returned to Garden Island after taking a large raft down the Canadian channel past Fiddlers Elbow. This feat once spoken of as being impossible was before performed in daylight by Capt. Martin, of the tug Hiram A. Calvin, but Capt. Sullivan is the first one to attempt it at night. He is proud of the performance of his new steamer and no doubt his own skill.

The steamer Mabel Bradshaw has been libeled at Benton Harbor, and a half interest will be sold at marshal's sale May 25th to satisfy a claim of the Montague Iron Works for \$3,000 dating from July 5, 1889. It is stated that there are other claims aggregating \$4,000. The steamer has been making regular trips between Benton Harbor and Chicago in the Benton Harbor Fruit & Produce Transportation Co. line for several years.

Vessels drawing 14½ feet of water can now pass through the Portage river and upper ship canal channels, which is within a few inches of what they can pass the Soo with. At the head of Portage lake a target is now set on a range back from the light on the outer end of the new pier to show a line of best depth of water. The roof of the light-house has been painted red, so that it can easily be seen by day, and a red light is placed on it at night.

We notice the following peculiar coincidence reported in one of our English exchanges: "Capt. Brooke, late master of the S. S. Brooklands, of West Hartlepool, in giving evidence concerning the stranding of this steamer off the Scaw on December 29th last, stated that twenty-nine years ago, while mate of a Whitby brig, he was wrecked on precisely the same spot. He went for shelter to the same cottage, and found the same people living there as on the day he was shipwrecked twenty-nine years ago."

BALLAD OF THE BOLIVAR.

RUDYARD KIPLING.—BARRACK-ROOM BALLADS.

Seven men from all the world, back to docks again,
Rolling down the Ratcliffe road, drunk and raising Cain;
Give the girls another drink 'fore we sign away—
We that took the Bolivar out across the bay.

We put out from Sunderland, loaded down with rails.
We put back to Sunderland because our cargo shifted.
We put out from Sunderland—met the winter gales—
Seven days and seven nights to the Start we drifted.

Racketing her rivets loose, smokestack white as snow,
All the coals adrift adeck, half the rails below;
Leaking like a lobster pot, steering like a dray,
But we took the Bolivar out across the bay!

One by one the lights came up, winked, and let us by;
Mile by mile we waddled on, coal and fo'c'sle short;
Met a blow that laid us down, heard a bulkhead fly,
Left the Wolf behind us with a two-foot list to port.

Trailing like a wounded duck, working out her soul,
Clanging like a smithy shop after every roll;
Just a funnel and a mast lurching through the spray;
So we threshed the Bolivar out across the bay.

Felt her hog and felt her sag, betted when she'd break;
Wondered everytime she raced if she'd stand the shock;
Heard the seas, like drunken men, pounding at her strake,
Hoped the Lord 'ud keep his thumb on the plumber block.

Banged against the iron decks, bilges choked with coal,
Frayed and frozen, foot and hand, sick of heart and soul,
Last we prayed she'd buck herself into the judgment day—
Hi! we cursed the Bolivar, knocking 'round the bay.

Oh! her nose flung up to sky, groaning to be still—
Up and down and back we went, never time for breath;
Then the money paid at Lloyds caught her by the heel,
And the stars ran round and round, dancing at our death.

Aching for an hour's sleep, dozing off between;
Heard the rotten rivets draw when she took in green;
Watched the compass chase its tail, like a cat at play—
That was on the Bolivar, south across the bay.

Once we saw, between the squalls, lyin' head the swell—
Mad with work and weariness, wishin' they was we—
Some damned liner's lights go by like a grand hotel;
Cheered her from the Bolivar, swampin' in the sea.

Then a grayback cleared us out, then the skipper laughed.

"Boys, the wheel has gone to hell—rig the winches aft!
Yoke the kicking rudder head—get her under way!"
So we steered her, pulley hauley, out across the bay.

Just a pack o' rotten plates puttied up with tar,
In we came and time enough 'cross Bilbao bar;
Overloaded, undermanned, meant to founder, we
Euchered God Almighty's storm, bluffed the eternal sea!

Seven men from all the world, back to town again,
Rolling down the Ratcliffe road, drunk and raising Cain;

Seven men from out of hell. Ain't the owners gay
'Cause we took the Bolivar safe across the bay?

SCREW PROPELLERS, REVERSING SCREW PROPELLERS, AND NON-REVERSIBLE ENGINES.

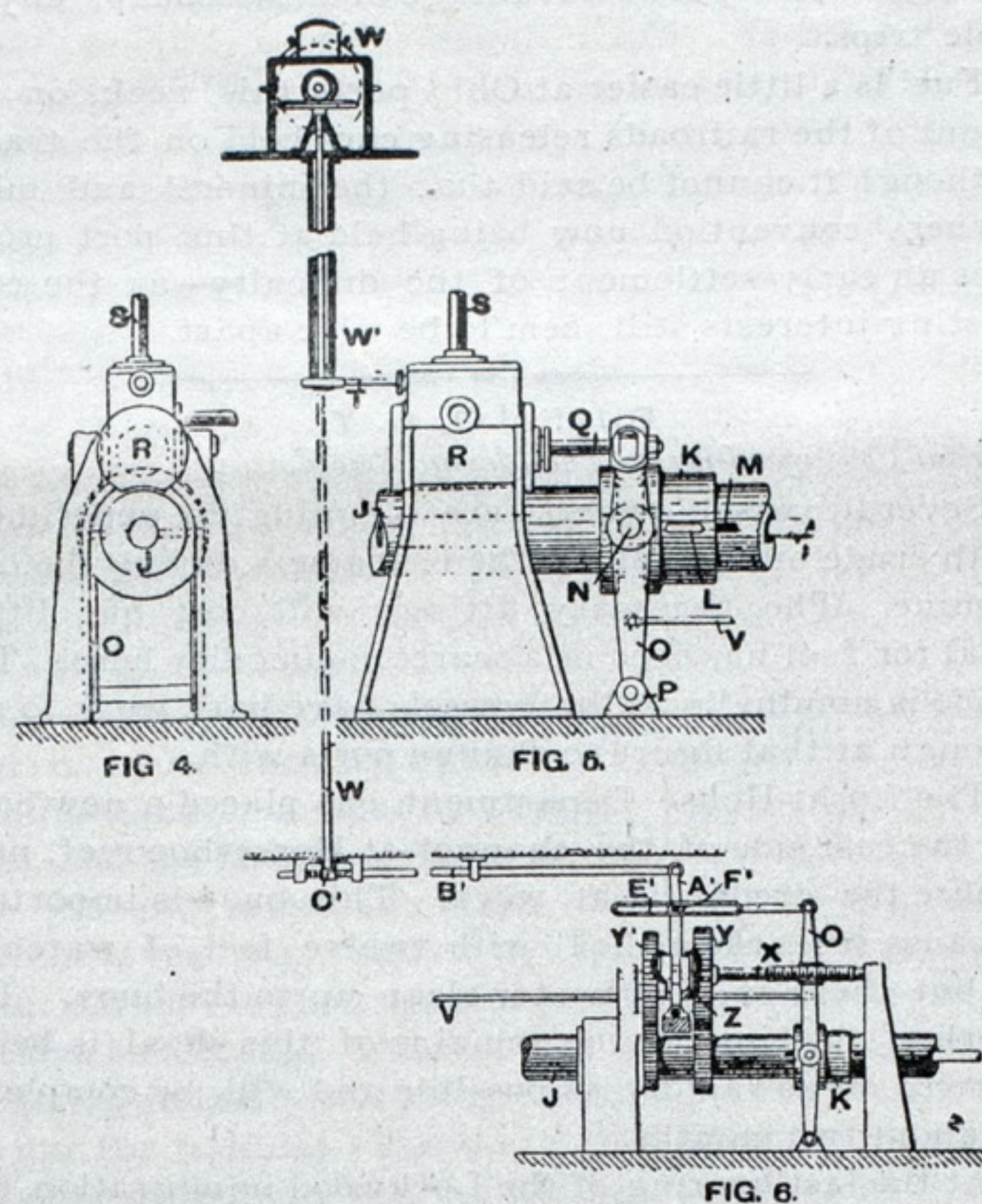
BY MR. ROBERT MCGLOSSON, HON. M. I. M. E.

Read at Cardiff, England, December 7th, Stratford, London, England, December 11th, 1893, and at Bombay and Calcutta.

PART 4.

For the purpose of moving and controlling the position of the rod I by fluid pressure, apparatus such as that typically shown in Figs. 4 and 5 will be employed. On the shaft J (Fig. 5) is a collar K; through this and the end of rod I a key L is passed and fixed, the key being free to slide in slots M in the shaft. In a large groove in collar K is a ring held by large pins N in the levers O, pivoted at P. Between the upper ends of these levers is a crosshead, which is fixed on the end of the rod Q. In the cylinder R is a piston, to which the rod Q is attached. Water (say) under pressure is admitted by the pipe S to the valve chest above the cylinder R, the valve being moved by the rod T. This valve rod is actuated by connections W¹ to a hand-wheel W, or by telemotor, motor, switches or such other arrangements as the requirements of the ship may dictate. The rod V (Fig. 5) indicates a connection or connections with the engine room, by means of which steam supply to the engines may be concurrently decreased and increased with the decrease and increase of the pitch of the propeller. This gear and these operations would, of course, be under the control of the engineer, but can, on emergency or when desired, be operated from the bridge or any part of the vessel.

In Fig. 6 is shown a typical gear which may be used in any vessel, from the smallest to the very largest, and in which the running inertia of the main shaft does all the work, the officer merely sliding a clutch along a shaft. The sliding collar K is moved by a nut on the screw X, and the levers O. Upon the screw shaft J are two steel cog wheels, which gear directly with the wheel Y and indirectly with the other wheel Y¹, both of which



are loose upon the screw-spindle X. Between the wheels of Y and Y¹ is a double-faced clutch Z, by means of which either wheel may be put into gear by the lever A¹. The latter is operated by the rod B¹ and pinion C¹, connected by a rod to the controlling apparatus W, such as that shown at Fig. 5. I need hardly mention that any equivalent gearing may be used. The slotted bar E¹ (Fig. 6) is provided for automatically throwing the friction clutch out of gear by means of the pin F¹ and lever A¹, when the blades of the propeller have reached full pitch in either direction.

The blade-shanks may be single or double coned, or of any desired shape, and ball or roller-bearings may be used when desired. In small vessels my screws and gears may be operated (directly) by a hand wheel or motor on bridge or deck. My system and designs will equally well accommodate more than two blades if requisite or desired. I have several other special designs for propellers, in which these gears are made to operate as nearly as possible in the center of the shaft and blades, direct. Only a small separate section of the shafting requires to be slotted when so fitted, and this can take the shape of a screwed connection of slightly extra strength and capacity to the (hollow) shafting. The system enables one pitch to be employed to get up steam and another to economically "hold" it.

In corroboration of what I have remarked, I quote from the *Engineer* of October 13, 1893:

"In many of the crack Atlantic and other high speed steamships it has been found necessary or advisable to have repeated changes made in the propellers—either new propellers altogether, or the old ones with reduced diameter, surface, etc. In most cases these changes have been instituted with a view to increase speed, but in some the question of minimizing vibration has also been involved." It will be obvious that my system will enable the engines to be held to the (non-vibratory) speeds of revolution under all conditions by adjustment of the developed propulsive area. I may here repeat that the "normal" (maintained) rate of revolution need not necessarily be kept at the maximum possible, say, under extreme conditions of easy running, unless desired; and that my special automatic throttling or expansion gears are capable of adjustment within desired limits. As the *Engineer* says, "The only mode is to ascertain the natural period of vibration of the hull, and choose the propellers which give the speeds most frequently required, at rates of revolution not approximating to multiples of the period of vibration." We cannot tell the exact periods of vibration until the vessel is tried, with the screws on it, and it will therefore be again seen that my system provides the only means by which the case can be met.

Also, "Some modifications have, it is true, been made on the propellers as at first fitted to the vessels (the Campania and Lucania) but these have not lain in the way of increased diameter or surface." The pitch of the screws of one of them has also been altered, and excessive vibration stopped.

Again, "the first Atlantic screw steamship" left Liverpool for New York on a voyage which was full of incidents, the result of which proved conclusively that a three or four bladed propeller was a decided improvement on one of six blades. It also appears that "the

ship still made good way" with only two. Messrs. John Penn & Sons afterwards fitted the Great Britain with a screw of three blades, and, had the revolutions been higher, two, properly designed, would have answered equally as well. There is no lack of "holding up" power in two blades—witness the Calliope.

Blades begun where they can act, revolved at the highest desirable speed, with pitch capable of variation to suit currents and conditions, and to make "pick up" an adverse current and also of making use of the normal revolutions while applying their impulse as nearly as possible in the plane of motion of the vessel (as the conditions and surroundings may render desirable); screws capable of reversal, alteration of speed, or temporary stoppage of propulsion; power suited to the developed propulsive area at all times, and engines held (under all conditions) to the desired or non-vibratory speeds, are the desiderata that modern screw propulsion must aim at, and such can be attained by this system alone.

It also provides the only practical means for direct manipulation, which will be invaluable in the event of imminence of collision and essential in modern warfare and manœuvring.

I seek safety for those "who go down to the sea in ships," and economy for those who "do business in great waters;" and I respectfully submit to your consideration a system that will insure the utmost economy in screw propulsion, that will save you much onerous manual labor and mental anxiety, and will give you more satisfaction in your work as marine engineers, and that will, on occasion, save both property and lives—your own perhaps included.

NOTES.

THE flag which is now flown on the Victoria tower of of the Houses of Parliament contains 96 square yards of bunting. It was manufactured by Messrs. Lane & Neeve, of the Minories, London, E. C.

THE proceedings of the 42d annual meeting of the Board of Supervising Inspectors of Steam Vessels is at hand, and is one of the most interesting annuals of the service to steamboat officers and owners throughout the country.

CHAS. SCHOFIELD, the popular superintendent of the shipyard at the Bath Iron Works, Me., tendered his resignation to the officials of that company to take effect May 8. Mr. Schofield has accepted a position as superintendent with Harlan & Hollinsworth, Wilmington, Del. Mr. Schofield made hosts of friends in Bath during his stay there and was prominent in Masonic circles. His friends wish him the best of success in his new field.

THE Priscilla, the floating palace of Long Island Sound, cost in the neighborhood of \$1,500,000. This magnificent boat is one of the crowning achievements in the lives of Geo. Peirce, supervisor of the Fall River Line, who planned the vessel, and of Andrew Fletcher, Sr., the founder of the North River Iron Works and the designer of the boat's engines.

CAPT. SAMPSON, Prof. Alger and Lieutenant Ackerman, composing the board designated by Secretary Herbert to investigate the charges relative to frauds in armor plates, left Washington to-day for Bethlehem, Pa. They will then witness an acceptance test of armor plate to-morrow and proceed to Homestead to resume their inquiries, with the expectation of returning to Washington at the end of the week.

THE importation of English steel by Arthur Sewall & Co., Bath, Me., for the construction of the steel sailing ship Dirigo amounted to 2,246 tons on which a duty of \$21,550.75 was paid. There was about fifty tons of shavings, punchings and clippings left over from the ship after she was completed and according to a recent treasury department ruling this will be taxed on the scrap iron and steel rate of three-tenths of one cent per pound unless it is taken aboard the ship and used as permanent ballast, in such a case no duty would be levied as it would be regarded as entering into the construction and equipment of the vessel, thereby being entitled to rebate of import duties.

THE *Maritime Register*, New York, says that the controversy between the collector of the port of New York and Frederick W. Vanderbilt, over the importation of the steam yacht Conqueror will be decided in the Supreme Court of the United States, the petition of the solicitor-general for a writ of certiorara having been granted by the court to review the judgment of the Court of Appeals for the second circuit in the matter. The yacht was brought into the United States August 27, 1891, having been bought at Glasgow, Scotland, for £15,500. Collector Fassett seized the vessel to enforce the payment of import duties. The United States Court for the southern district decided that the yacht was not an imported article liable to duty, and ordered to be restored to Vanderbilt by a decree which also awarded him actual and consequential damages for her detention in the sum of \$20,784. This judgment was affirmed by the Circuit Court of Appeals.

TORPEDO BOAT ERICSSON.

The torpedo boat Ericsson the first United States war vessel ever built in Iowa was launched on Saturday afternoon from the yards of the Dubuque Iron Works in the presence of several thousand people. As the vessel struck the water a national salute was fired. Among the guests were Miss Helen Gould, of New York, and Lieut. Usher, of the Navy Department. Addresses were delivered and there was a parade of military and civic organizations. Miss Carrie Kiene christened the vessel.

The Ericsson is now over a year behind time. Under the contract she was to have been completed 12 months from the time the work was begun, and this time expired last January. Penalties were to be enforced for overtime in the completion of the boat and these already amount to thousands of dollars. At the present rate it is said the penalties will be nearly equal to the cost of the vessel and should the boat be delayed many months longer the builders would almost be in a position of paying the government for the privilege of constructing the vessel as well as turning the boat over free of cost. Under the contract the vessel is to be delivered to the government at Key West, Fla.

The Ericsson was built under the act of June 30, 1890, which fixed her speed requirements at twenty-four knots and the cost of her hull and machinery at \$125,000. The contract was let to the Iowa Iron Works for \$113,000 provision being made for premiums ranging from \$2,500 to \$3,500 for each quarter knot above the guarantee.

The Ericsson is the second torpedo boat built for the new navy. The first was the Cushing, but it is claimed that the Ericsson will in every way be superior to the Cushing, whose speed is rated at twenty-two knots. The Ericsson, in order to come up to the specified requirements must make on trial twenty-three knots an hour, and twenty-five if necessary.

The general dimensions and features of the Ericsson are: Length, 150 feet; beam, extreme, 15.62 feet; normal draft amidships, 4.75 feet; normal displacement, 120 tons. The general construction of the new vessel is on the transverse system, and special attention has been given to the longitudinal strength and stiffness by the use of an intercostal vertical keel and broad heavy stringer plates. Her plating is three-sixteenths of an inch thick, made from specifications furnished by the government. All steel which could not stand the chemical and microscopic analysis was rejected.

The armament of the new vessel consists of one fixed torpedo tube in the bow, two tubes on a training circle aft and four long one-pound rapid firing guns. The fixed tube will fire Howell torpedoes; the turntable tube will operate eighteen-inch Whitehead torpedoes. An electric plant for lighting the vessel by the incandescent system and for operating a search light has been provided for in the engine room.

The motive power consists of two sets of four cylinder quadruple expansion engines of the vertical, inverted, direct acting type, operating twin screws. The cylinder diameters are 11½, 16, 21½ and 30 inches. The stroke of the pistons is 16 inches. The estimated indicated horse power of the propelling and circulating pump engines is 1,800. The estimated indicated horse power of the propelling and circulating pump engines is 1,800. This estimate is based on a propeller speed of 412 revolutions per minute. The high pressure cylinders are placed forward and the low pressure cylinders aft. The two engines are contained in one water-tight compartment. The main valves of the engines are operated by Stephenson link motions. There is one piston valve for each high pressure cylinder, two for each intermediate pressure cylinder, and one double ported side valve for each low pressure cylinder.

The construction of torpedo boats demands workmanship of the highest possible standard. The fastest in service to-day are of the Thornycroft and Yarrow English types. The Ariete, a Spanish torpedo boat of the Thornycroft pattern, attained at its trial a speed of 26.001 knots an hour. The Rayo, a sister torpedo boat, made 25½ knots an hour.

The contract for the construction of the Ericsson was signed by the Iowa Iron Works, of Dubuque, Ia., on Sept. 16, 1891.

LAKE ERIE FISHING.

The Toledo *Commercial*, speaking of the arrest of American fishermen, caught presumably within the Canadian boundary line, says: "On this side of the lakes we have permitted the wanton destruction of our fishing interests. We might have in Lake Erie and all the waters of Ohio as fine sport as can be found in the world. Lake Erie and its waters were once swarming with as fine game fish as could be found in any country. No other waters are better suited for the propagation of game fish. Once the world furnished the angler no better sport than he enjoyed fishing for black bass at Put-in-Bay. Now the waters of this vicinity are so thick with gill nets and other nets that the black bass have been driven into Canadian waters, where they are

protected. Almost without a protest we have permitted the destruction of our fishing interests, and the present legislature seems to be under the control of the gill-netters, who pursue a method of warfare that drives the fish from our own waters to the north side of the lake. In the meantime, Canada, with wise foresight, has been protecting her fishing interests. Now that we have permitted this destruction of our own interests, our citizens, contrary to the laws of the Dominion, go into Canadian waters to enjoy a sport they might with common prudence still have at home."

NEW LAKE TONNAGE.

Official numbers have been assigned by the Bureau of Navigation, Treasury Department, to the following lake built tonnage during the week ending May 5, 1894:

Steam—Grandon, Toledo, built at Toledo, O., 48 tons gross. Idler, Toledo, built at Oshkosh, Wis., 233 tons. Mohawk, Cleveland, built at Fairport, O., 20 tons. North West, Marquette, Mich., built at Cleveland, O., 4,244 gross and 2,339.78 tons net.

ELECTRIC CRANE FOR SHIPYARDS.

Mr. Alex. E. Brown, of the Brown Hoisting & Conveying Machine Co., Cleveland, O., has invented a new high speed electric cantilever crane for shipbuilding, which is now in operation at Newport News, Va. The parts of a ship may be constructed in the shops in large sections and then lifted by the crane to their required position in a very short time. The work of construction is thus vastly aided, the time required being less and the cost consequently much reduced. By this crane \$9,500 is said to have been saved in two months.

NEW FORM OF ARMOR PLATE.

Paul R. de F. d'Humy, of Chicago, is the inventor of a novel form of armor plate, which is soon to be given an extensive trial by the government. If the test is successful it means the entire revolutionizing of the present system of making armor plate. Mr. d'Humy's plan is to present the edge of an armor plate instead of its surface to the projectiles of the enemy. Instead of being in one piece the plate will be composed of a number of 2-inch steel plates set on edge and bolted together. The manufacture will be within the scope of even the smallest plant, so that no one firm with a powerful plant need control the output, and the government will be able to make its own plates if desired.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN AND NORTH-WESTERN LAKES—MICHIGAN.

KALAMAZOO PIERHEAD LIGHT—Notice is hereby given that, on or about May 18, 1894, a fixed red light will be established on the outer end of the S. pier, at the mouth of Kalamazoo River, Mich.

The light will be shown from a lantern in an inclosed glazed end of a conduit extending shoreward a distance of 240 feet. The focal plane of the light will be 21½ feet above lake level.

PORTE DES MORTS (PILOT ISLAND) LIGHT-STATION—Notice is hereby given that, on or about May 18, 1894, the steam siren now used during thick or foggy weather at Porte des Morts (Pilot Island) Light-Station, in Lake Michigan, at the entrance to Green Bay, Wis., will be discontinued, and thereafter the fog signal will be a 10 inch steam whistle, sounding blasts of 5 second's duration separated by silent intervals of 30 seconds, thus:

Blast	Silent interval	Blast	Silent interval
5 sec.	30 sec.	5 sec.	30 sec.

The new signal is located in the more southerly of the two fog-signal houses, about 200 feet S. by W. from the light-house.

FRYING-PAN ISLAND LIGHT-STATION—Notice is hereby given that, on or about May 25, 1894, the color of the tower at Frying-Pan Island Light-Station, W. side of Detour Passage, entrance to St. Marys River, Mich., will be changed from brown to white, to render it more efficient as a day range with Pipe Island Light-House. No other change will be made.

PIPE ISLAND LIGHT-STATION—Notice is hereby given that, on or about May 25, 1894, the color of the tower at Pipe Island Light-Station, Detour Passage, entrance to St. Marys River, Mich., will be changed from red to white, to render it more efficient as a day range with Frying-Pan Island Light-House. No other change will be made.

By order of the Light-House Board:

JAMES A. GREER,

Rear-Admiral, U. S. Navy, Chairman.

Office of the Light-House Board,

WASHINGTON, May 10, 1894.

A BATCH OF COLLISION DECISIONS.

Judge Swan, of Detroit, rendered decisions on Monday in four collision cases, involving more or less loss of property. The first was in the case of the schooner Hunter Savidge, which collided with and sank the schooner Minnie Davis on Lake Erie about 4 a. m., Nov. 15, 1891. The Davis was close hauled at the time and the Savidge running free. It was therefore the duty of the Savidge to keep out of the Davis' way, and practically the only question involved was whether the Davis' lights were burning properly. Judge Swan found that they were and held that the Savidge was solely at fault for the collision.

The steamers Byron Whitaker and Japan collided on Lake Huron, Sept. 18, 1891, and both sustained considerable damage. The collision happened at mid-day but a heavy squall had been prevailing and rendered it impossible for the pilots to see any great distance ahead. Before the squall, however, the two vessels had been in plain sight of each other, and Judge Swan held that the Japan negligently altered her course so as to cause the collision and he rendered judgment accordingly.

About 11 p. m. on April 23, 1892, the schooner Home, lumber laden from Sand Beach, was badly damaged by colliding with the steamer H. E. Packard in the St. Clair River. Decree against the propeller.

The schooner Ashland was going up the St. Clair River, Nov. 13, 1891, in tow of the steamer F. W. Wheeler, when she collided with the steamer Porter Chamberlain and barge Comstock, the first of three lumber laden vessels bound down in tow of the Chamberlain. The collision happened about 4 a. m., when it was very dark. The water was very low, and the Wheeler had touched the bottom and partially grounded, which disarranged her tow in the narrow channel, and another tow just astern tended to complicate matters. Judge Swan decreed that the Wheeler and Ashland were solely at fault.

All the cases were referred to a commissioner for assessment of damages.

TREASURY DECISION.

ADMEASUREMENT OF VESSELS.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION.)
WASHINGTON, D. C.)

SIR:—This office is in receipt of your letter dated the 10th of February last, and subsequent correspondence, relative to your admeasurement of the steamer Charles West. The vessel has a second deck, the space between which and the deck below is enclosed at the sides only about half her length, the residue of the upper deck extending aft being supported by stanchions bearing directly on the frame timbers of the hull, and the space below not being boarded at the sides.

Mr. Thompson, your admeasurer, considered the space between the upper and the deck below as a between decks, and measured and reported the tonnage accordingly. To this report the owner of the vessel objects, on the grounds that the tonnage so stated was excessive. On inquiry it was found that the admeasurer's action was in accordance with the practice at the port of New York, the collector of which port transmits, under date of the 13th inst., a statement from the acting surveyor to the effect that Mr. Thompson's admeasurement was "entirely correct in principle," and that the fact that between decks is not entirely closed on the sides does not exempt it from admeasurement, the "closed in spaces" referred to in the law and regulations relating to admeasurements being "closed in spaces above the deck to the hull."

Your decision is affirmed, subject to the correction of certain minor errors are found in the calculations as indicated in the enclosed notes.

To collector of customs, Grand Haven, Mich.

THE SOUTH CHICAGO DRY DOCK.

The large new dry dock now being constructed by the Chicago Ship Building Co., is progressing steadily and when completed will be found a complete modern dry dock in size, equipment and general facilities.

The cofferdam is already finished, about one thousand and piles and half the timber to be used in the construction is on the ground and the steel gate, or caisson has been built and thoroughly tested for leaks before being placed. The pumping plant consisting of two 30" submerged centrifugal pumps driven by vertical engines is being built by the Southwark Foundry & Machine Co., of Philadelphia, Pa. Four horizontal tubular boilers will generate steam by using oil as fuel. The saw and jig mills are planned to be put in next to the pump house, though driven by separate engines. One of the finest facilities for docking, handling lines, etc., are the four steam dock capstans which are to be placed one at each corner of the dock and leads will also be given to the capstans for working the derrick as well as other surface requirements.

THE MARINE RECORD

ESTABLISHED 1878.

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CLEVELAND, O., MAY 17, 1894.

THE Lake Superior record work last season seems to have been earned by the Minnesota Steamship Co. (Pickands, Mather & Co.), Cleveland, O., the Matoa covering a distance of 42,939 miles, and the Mariposa, of the same line, topping the record by transporting an aggregate of 87,760 tons. The Selwyn Eddy, built by the Detroit Dry Dock Co., came through St. Mary's Falls canal on the limited draft allowed there with a cargo of 3,686 net tons, and the whaleback tow barge Sagamore followed her record with 3,232 net tons.

SOME years ago Capt. John Baxter, now master of the Light-House tender Haze, published a card of amplitude tables for the lakes. Desiring to see these cards widely circulated we refrained from duplicating the work so ably placed before the lake marine until a few weeks ago when computations were made covering the entire season, for publication each week in THE RECORD. The value of such a table, it appears, has also occurred to the Hydrographic Department U. S. Navy, as we have just been favored with a copy of azimuth tables adapted for use on the Great Lakes.

THE Bay City, Mich., wooden shipbuilder, Capt James Davidson, has the proper courage relative to the future of the lake marine, and shows it by following up the launch of the large schooner or tow barge Grampean with a 3,000 ton wooden steamer, launched on Wednesday, named the Shenandoah, a sister ship to the Thomas Cranage; dimensions of 330, 43 and 26 feet, steel strapped and arched, with triple expansion engines, Joy valve gear and large Scotch type boilers, is the property which classification societies like to survey and rate as A 1 tonnage. Her estimated valuation is \$175,000.

THE Inland Lloyds seems to have acted according to strict business interests in discarding all tugs from the register except those engaged in the wrecking business. Tug owners generally have taken over their own insurance, more especially during the last five years, so that except an occasional fire risk policy, little or no business has been done in the tug boat line. Furthermore, there is no unanimity expressed at this time, among owners of tugs, relative to a mutual insurance club or association on a mutual assessment plan, as it is thought that such a combination could not be harmonized into a smooth working indemnity system.

A SEAMAN named Adolphe Frietsche has left Milwaukee, Wis., to journey through the land locked waterways and cross the Western Ocean to Europe in a small boat. On the other side of the "pond," a navigator intends to start from Nottingham, sailing down the Trent to Hull, and making for the Atlantic by way of the English Channel. He thinks that the trip will occupy him something over a month. Of course, there is no justice in trying to thwart the free agency of any sane person, although nine out of ten men believe that the escapade of these two men will probably result in nothing short of *felo de se*. Certainly, if they fell in the sea, while a north-wester was cavorting around there would be little danger of them annoying vessels engaged in commerce, and the chances are all against them. We are personally acquainted with Capt. Frietsche and a few years ago there were no signs of mental derangement about his make-up, nor are there now, to the best of our knowledge, but why a man that has battered across the North Atlantic and had enough to do to live in a big boat, should tackle the job in a small boat we can't imagine, unless it is for a love of notoriety. The Englishman is still worse afflicted, for he will have to buck up hill all the way to the westward, or at least until he is picked up likely more dead than alive.

THE LOCKWOOD IMMIGRATION BILL.

A bill has been prepared by Congressman Lockwood, of Buffalo, entitled, "An act for the necessary and better protection of American labor, and enforcement of the law of domicile and the restriction of immigration." The title of this bill sounds patriotic and it seems to convey a due protection to the interests involved, but, section 7 is entirely too utopian a measure for the trade or class it attempts to benefit on the lakes.

The section referred to reads as follows:

"That sailors and deck hands working on American vessels plying on our Great Lakes shall be permanently domiciled in the United States six months prior to his working or engagement on said American vessels. The master or owner of said vessels shall be and are hereby held responsible for the employment of all hands to man and work on said American vessel or vessels, and any master or owner of said American vessel or vessels permitting the working on said American vessel or vessels of any alien who has not been permanently domiciled in the United States six months prior to such working or employment, the master or owner of said vessel or vessels shall be deemed guilty of a misdemeanor and shall, on conviction, be fined in the sum of not more than \$500 nor less than \$300, or by a term of imprisonment not exceeding one year and not less than six months for every such offense."

From the foregoing it can be easily seen that masters and owners would be placed in the position of inquisitors and before shipping a roustabout, deck hand, cook's assistant, or any other small pay employe, it would be necessary to procure a certificate of residence apparently well authenticated, or an affidavit from perhaps a questionable source. This feature, of course, would eventually resolve itself into a circle whereby newcomers could not obtain a permit to work on board vessels only from those desiring to retain some hold upon their future action and career, or we would be forced to go back three or four decades and have "protection papers" issued by a duly qualified port officer, stating that the bearer was entitled to ship, etc.; even then, these permits would no doubt be frequently lost, strayed or stolen, and a challenge to produce proofs of domicile under such circumstances would positively lead to inconvenience and perhaps detention of a vessel on the point of sailing.

The measure would no doubt be more applicable on the coast, and especially so for foreign going vessels shipping a crew in a home port, but even this tonnage ought not to be hampered by unnecessary restrictions in the prosecution of transportation ventures. Certainly it would be derogatory to commerce and an uncalled for interference in the handling of a fleet of steamers, if applied to the short lake trade, where shipping and discharging are sometimes required within an interval of twenty-four hours, and not unfrequently after changing ports.

We therefore assert that this special section of the Lockwood bill is class legislation of the narrowest sort, and if enacted, would eventually redound to the discredit of even those whom it now appears to benefit, although no doubt its advocates are armed with plausible arguments in favor of the passage of the bill as it stands. The law as at present exercised insists upon the officers of American vessels being American citizens, and any further restrictions in this respect, either for the merchant or naval service, would be unwise in the extreme.

AZIMUTH TABLES FOR THE LAKES.

A refreshing departure taken by the U. S. Hydrographic Office, U. S. Navy, is the issuance this week of a well bound book of Azimuth Tables adapted for use on the Great Lakes, computed by the department officers under Commander C. D. Sigsbee, U. S. N. chief hydrographer.

Hitherto the absence of any attention to the lakes by a navy department has been most marked, and even in the book under review we find "the variation in the region of the lakes runs from about 8° E. at the western end of Lake Superior to about 10° W. at the eastern end of Lake Ontario," a feature, by the way, which we are very much averse to seeing quoted as "about." In treating of variation the curves should be exactly located and no indifferent computations or "abouts" permitted. With this one criticism, we must pronounce the work to be an excellent one and just what is required in view of the largely increased fleet of metal boats now engaged in the lake trade, whose compasses are all affected by deviation to a greater or less extent. The tables give the true bearings of the sun at intervals of ten minutes between sunrise and sunset for parallels of latitude between 40° N. and 50° N. inclusive. There is also an article on compass errors by Lieutenant Richard Wainwright, U. S. N., and correction tables computed by Mr. E. W. Littlehales, of the Hydrographic Office. The great difficulty in the past has been to get masters and pilots to look at any work containing a table. In fact, the duties of lake seamen are such that but scant attention can be given to anything in the form of a problem, no matter how important the result to their own comfort or their vessel's safety may be, nor do the qualifications for license require the slightest figuring to be done at any stage of the examination. This work on true bearings or azimuths

given by inspection should therefore fill a void, admitting, as it does, the corrections of a compass to be known and tabulated at any time the sun is visible. Hence, any one in possession of the book of tables need no longer blame compasses or the adjusters thereof for assumed erratic work, as he can tell to a degree the necessary correction to apply on all courses.

Having noted in the foregoing the assumption relative to the curves of variation on the lakes, we may point out the ancient dates of many surveys and charts drawn therefrom giving the curves of variation at that time, some of which are uncorrected to date. We do this to emphasize the utility of inserting a plate of variation curves in the new book of azimuths; then the bearings and deductions for deviations would be in the best form for facilitating the observations taken by lake shipmasters.

LAKE PASSENGER STEAMERS.

The large and well appointed steamers which the Northern Steamship Co. inaugurate a lake passenger service with, are the prototypes of modern Atlantic "greyhounds" and they will bring back into favor the lake tours which comparative multitudes formerly enjoyed.

There can be no doubt but that the meager accommodation offered travelers, especially those who were not disposed to count their pocket books every hour, drove patronage away from the most health giving and restful recreation which those desiring a vacation could possibly enjoy, viz., a tour up the lakes.

The advent of the Northwest alters all former conditions, furnishes a palatial temporary residence for pleasure and health seekers and almost gives them unlimited comforts during their sojourn on board of her or her sister ship the Northland. Relative to time, there will no longer be any uncertainty regarding the hour of arrival and departure at or from any point; regularity and the means to insure same is a *sine qua non* of the service and is perhaps one of the most satisfactory features which heralds the advent of this modern method of transportation over the Great Lakes. The projectors, builders and owners, the citizens of the terminal ports to which these boats will ply, as well as those of the ports of call and the entire lake community, are honored in the present and ultimate success of the boats, built, we may say, fully abreast, if not more nearly a decade in advance of the times.

FOLLOWING the capture of the Dunkirk, N. Y., fishing tug Grace, the news that two small American steamers had been seized near Kelly's Island, Lake Erie, by the Canadian patrol vessel Petrel because their crews and passengers were fishing for black bass, gave daily papers a chance to exhibit some flaring patriotism and indulge in a warfare craze on paper. The ripple having subsided, it is but just to state that the seizures were made in waters wholly under the jurisdiction of Canada for violation of the Canadian fishing law. By the treaty of Ghent, the middle of Lake Erie was declared to be the boundary line between United States and British possessions, and exclusive jurisdiction over the waters south of the dividing line was given to this country and over the waters north of the line to Canada. Therefore, it is clear that the Canadian government has full authority to make laws governing fishing in that territory. The estimated value of the two boats is \$35,000, and they are subject to confiscation, though it is to be hoped that a nominal fine will satisfy all demands pressed by the Dominion authorities.

ENGLISH and Nova Scotia coal is being imported on the eastern seaboard for fueling purposes at a cost within forty-five to fifty cents per ton of the ordinary soft coal delivered alongside in New York. This should be regarded as "ocular demonstration" of the folly of tinkering with the protective tariff on coal to the demoralization of our own industries and labor.

STAGE OF WATER AT ST. MARY'S FALLS CANAL.

The following was the stage of water over the miter sill of the St. Mary's Falls ship canal for the week ending May 17, 1894:

May 9	8 a. m.	14 ft. 7 in.	8 p. m.	14 ft. 8 in.
" 10	"	" 9 "	"	" 6 "
" 11	"	" 8 "	"	" 8 "
" 12	"	" 8 "	"	" 6 "
" 13	"	" 8 "	"	" 6 "
" 14	"	" 6 "	"	" 8 "
" 15	"	" 6 "	"	" 8 "
" 16	"	" 8 "	"	"

NAVAL TRAINING STATION AT 'FRISCO.

Secretary Herbert announces that it is the intention of the Government to establish a naval training school at San Francisco port. At present but three training ships are in service, the Saratoga at Philadelphia, the St. Marys at New York, and the Enterprise at Boston. The school to be established there it is understood, will be in place of the one at New York, and it is the intention to utilize the old Pensacola which is lying at Mare Island out of commission.

CORRESPONDENCE.

We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

LOSSES TO VESSELS AND CARGOES ON THE GREAT LAKES.

COMPARATIVE DANGERS TO HULLS ANNUALLY INCREASING.

CHICAGO, ILL., May 17, 1894.

To the Editor of The Marine Record:

Gratifying my curiosity concerning the comparative dangers to hulls and cargoes, on consulting the tables of the Life-Saving Service on the lakes, I find there has been a remarkable increase of late years to the suffering of hulls. The tables cover a period of nineteen years, from 1875 to 1893 inclusive. Dividing into four terms, the first having four, and the three others five years each, we have as follows:

(1)	
Aggregate losses of hulls.....	\$3,230,629
Aggregate losses of cargoes.....	2,189,950
Ratio of cargoes to hulls, 67.78 per cent.	
(2)	
Aggregate losses of hulls.....	\$3,875,330
Aggregate losses of cargoes.....	1,439,885
Ratio of cargoes to hulls, 32.22 per cent.	
(3)	
Aggregate losses of hulls.....	\$4,920,465
Aggregate losses of cargoes.....	1,620,045
Ratio of cargoes to hulls, 32.92 per cent.	
(4)	
Aggregate losses of hulls.....	\$7,291,405
Aggregate losses of cargoes.....	1,685,575
Ratio of cargoes to hulls, 23.11 per cent.	

It will be seen that for fifteen years there has been but a small absolute increase in losses to cargoes, while losses to hulls have nearly doubled, and are roughly proportioned to the number of vessels in use. Though these have greatly increased in nineteen years, the average number of total losses each year is nearly the same. For the whole period this was 53, and for the last five years only 54. Partial losses exhibit similar facts, hence it seems that the larger and not the smaller vessels, incur the losses and suffer the increase of damages, mainly.

To accidents occasioned by want of care in navigation may be ascribed a great deal of the waste of wealth on hulls, as it would seem. It is impossible that the vast increase of this waste of property springs from the small wooden vessels that of late the underwriters have felt like blaming for it. Like poor dog Tray, this class, grown old it is true, is punished for being in bad company.

WM. W. BATES.

AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset by reversing the bearings given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's rising and setting.

LAKE ERIE AND S. END LAKE MICHIGAN. LAT. 42° N.		
Sunrise.	Bearing (degrees).	Bearing (points).
May 16.....	E. 26° N.	NE. by E. ¾ E.
May 20.....	E. 27° N.	NE. by E. ¾ E.
May 24.....	E. 29° N.	NE. by E. ¾ E.
LAKE ONT., S. END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.		
Sunrise.	Bearing (degrees).	Bearing (points).
May 16.....	E. 27° N.	NE. by E. ¾ E.
May 20.....	E. 28° N.	NE. by E. ¾ E.
May 24.....	E. 30° N.	NE. by E. ¾ E.
W. END LAKES HURON AND MICH. LAT. 46° N.		
Sunrise.	Bearing (degrees).	Bearing (points).
May 16.....	E. 28° N.	NE. by E. ¾ E.
May 20.....	E. 30° N.	NE. by E. ¾ E.
May 24.....	E. 31° N.	NE. by E. ¾ E.
LAKE SUPERIOR. LAT. 48° N.		
Sunrise.	Bearing (degrees).	Bearing (points).
May 16.....	E. 29° N.	NE. by E. ¾ E.
May 20.....	E. 31° N.	NE. by E. ¾ E.
May 24.....	E. 32° N.	NE. by E. ¾ E.

With a compass correct magnetic, the difference between the observed bearing will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

On May 20 the sun rises in lat. 42° N. at 4 hours 43 min. and sets at 7 hours 17 min. apparent time. In lat. 44° N. rises at 4 hours 38 min. and sets at 7 hours 22 min. In latitude 46° N. rises at 4 hours 31 min. and sets at 7 hours 29 min.; and in lat. 48° N. rises at 4 hours 25 min. and sets at 7 hours 35 min., altering about one minute earlier each day in rising and one minute later at setting until she reaches her highest northern declination on June 21.

LAKE FREIGHTS.

After fluctuating back to 75 cents during the week the highest Lake Superior rate has gone up to 80 cents again with brisk chartering at that figure. The Marquette rate is at 65 cents and the Escanaba strong at 45 cents with a demand for 50 cents. Coal, of course, is almost an unknown quantity these times. Chicago has pulled out of the last two weeks' rut and fair chartering is now being done at 1¼ cents on corn to Buffalo with an effort to bring the Kingston rate from 2½ to 2¾ cents for corn. Buffalo coal freights are quiet at 35 cents to Chicago, vesselmen asking 40 cents and head of the lakes 15 cents. Oswego to Chicago 65 cents. Canal rates weak at 3 cents on wheat and 2½ cents on corn to New York. The outlook for paying freights is considered better than at any time in the season and a fairly brisk business is anticipated at figures slightly in advance of past rates.

A FLOATING NUISANCE.

A ridiculous experiment in Atlantic navigation is to be attempted by an English enthusiast who has been occupying himself for a year past with the construction of a boat in which he proposes to cross the Atlantic during the present summer. The craft which is built of iron, and is entirely of his own design and make, is only 10 feet six inches long, with three feet beam, and two feet six inches in depth, and is thus the smallest vessel that has ever wantonly attempted such an adventurous voyage. She has what is known as a "whaleback" deck, and the cabin, lighted by glass windows at the side, will be completely water-tight when closed, fresh air being obtained by pipes. Should the tiny craft be overturned, the inventor claims that she will automatically right herself. She will be fitted with a 10-foot mast with jib and mainsail rig and additional motive power will be supplied by a geared handcrew. Such a craft, however, will prove a floating nuisance to both sail and steam, for they will alter their courses to rescue the crank.

ELECTRICITY FOR MELTING METAL AND CONVERTING ORES.

A reduction of the cost of casting steel, iron and other metals by 5 per cent.; a great saving in time, the production of castings free from oxide action and blow holes, and most important of all, the production of pig iron in the mountainous and remote districts having water power and ore but no coal; all these things may result from the application of electricity, according to a new process described in a report to the department of state by United States consul Frank Mason, at Frankfurt, Germany.

The process is known as the Taussig process and provides for smelting and casting metals by electric heat, under the influence of rarified air. An air-tight furnace lined with glazed fire brick, has its hearth connected with moulds into which the fused metal flows by gravitation. The fire brick lining forms an efficient insulation and the electric current is sent through the charge directly without the use of any fuel or the employment of carbon electrodes. Thereby the fused metal is nearly pure and free from carbon, and the continued exhaustion of the air and gasses produced increases the fluidity of the molten material, prevents oxidation and blistering and produces dense, smooth castings of the highest mechanical qualities.

In a small, experimental furnace a ton and a half of pig iron was smelted in fifteen minutes by a current of 30,000 amperes and 50 volts—about 2,000 horse power. With water power the cost is very low and even using steam to generate the electric current there is economy in fuel in smelting of 30 to 50 per cent. The cost of pig iron, with ore at \$2.40 per ton is said would not exceed \$8 per ton with a motive power of 1,000 horse power.

SUPERVISING INSPECTOR OF STEAMBOATS.

Reports about the resignation of Capt. C. H. Westcott, in Detroit as supervising inspector of steamboats for the Eighth district has been rife for the past two or three weeks although flatly contradicted by good authority. The following Washington special to the Cleveland Leader appears to give the situation as it now is.

"Secretary Carlisle has called for the resignation of Charles H. Westcott, of Detroit, supervising inspector of steam vessels for the Eighth district. The resignation is intended to take effect upon the appointment and qualification of his successor, provided it is submitted without the necessity of a removal. The appointment of a successor will be one of the first matters to occupy the attention of President Cleveland when he returns to Washington. It will also be a matter in which no less than eight candidates will take lively interest. The Eighth district includes all the waters of the lakes north

and west of Lake Erie and tributaries, with the exception of that portion of Lake Superior bounded by Minnesota and Wisconsin. Captain Westcott, the present supervising inspector, was appointed June 30, 1891. There are ten such offices in the United States, and each pays a salary of \$3,000. The statute provides that the inspector must have practical knowledge, skill, and experience in steam navigation with a thorough understanding of the machinery in all parts. The candidates for this office are clamoring for recognition and some bear strong endorsements. The list includes the following: John H. Galwey, Michael B. Kean, William M. Daly, and Charles H. Westcott (for retention,) Detroit; Elwin J. Thomas, Frank Lawler, Jonah R. Taylor, and William J. Hackett, Chicago. Thomas is the most likely candidate. Durborow and others of the Illinois delegation are making an unqualified demand for Thomas' recognition. According to an official who is familiar with the papers in the case, Thomas has the lead, though there is no guessing what President Cleveland will do. John H. Galwey, of Detroit, is endeavoring to get to the front. He had some endorsements, but the majority of papers in his case are protests. The vessel owners are generally for him. Galwey was formerly national president of the Marine Engineers' Beneficial Association, and as such conducted a strike of engineers on the lakes. For this Galwey has not been forgiven. He is perhaps the least formidable of the numerous applicants for the position. If Inspector Westcott hands in his resignation immediately, the appointment of a successor will speedily follow. But if it becomes necessary to remove him some time may elapse before the matter is settled.

TRADE NOTES.

Messrs. Doty Bros. & Co., Toronto, report that they are meeting with considerable success in the introduction of the Finlayson water tube marine boiler. They have just shipped two of them to Stuart & Harper, Winnipeg, for steamers now being constructed on Lake Winnipeg.

The demand for the "Providence" capstans, made by the American Ship Windlass Co., of Providence, R. I., still continues, both in this country and in Europe. There are two very good reasons why this demand should continue and increase; one is the quality of the capstans and the other is the price. Foreign shipments this week to their agents at Liverpool, Eng., are three No. E bar capstans, three No. C crank capstans and one bronze yacht crank capstan.

The Sintz Gas Engine Co. report their works as being stocked with orders and more coming in daily.

Mr. Charles W. Whitney, representing Messrs. John Williams & Co., Liverpool, Eng., Messrs. John Brown & Co., Lim'd, Sheffield, Eng., has removed to room 77, ninth story, Manhattan Life building, 64, 66 and 68 Broadway, New York.

The Detroit Boat Works are out with a handsome illustrated catalogue for 1894 giving a description of the inclusive tonnage which this well known firm build and price list of equipment, which will be found very useful for those engaged in fitting out.

George Warrington, 86 North Clinton street, Chicago, is offering for sale the handsome, fully equipped steam launch Ollie. She is allowed ten passengers, is a duly enrolled vessel, and he says she will be sold at a great sacrifice.

John Roebling's Sons Co. are now manufacturing a flexible steel wire tow rope for lake use. Their tiller rope is already in large demand and their facilities for wire rope making at Trenton, N. J., are practically unlimited.

The Collier Steam Yacht & Boiler Works, Detroit, are turning out a patent sectional water tube marine boiler that has attained an excellent reputation considering the short time which the boiler has been on the market. Literature sent out by the firm shows that the boiler has been approved by the Board of Supervising Inspectors of Steam Vessels.

The illustrated catalogue of the Vulcan Iron Works Co., Toledo, O., shows steam shovels and dredges guaranteed to accomplish what they are purchased for. We note that the firm keep pace or perhaps a little ahead of the times with improvements in their well known specialties.

THE SAME IN AMERICAN TONNAGE.

It is asserted by the London *Pail Mall Gazette* that "practically nearly 75 per cent. of the men manning the British mercantile marine are foreigners." The chief reason why ship owners prefer foreign seamen is said to be that the foreigners are more easily satisfied as regards food and accommodation than British seamen. The deficiency in English sailors is considered serious because the mercantile marine is looked to in a great measure for reserves of seamen in case of a naval war.

THE FALL RIVER LINE STEAMER PRISCILLA.

(From the American Shipbuilder.)

The new passenger and freight steamer for the Old Colony Steamboat Co. (Fall River Line, New York to Boston) has been built, in general, after the style of the Puritan of that line, the only marked changes being an increase in length, the style of engines and boilers, and placing the dining room on the main deck instead of in the hold. The new boat has been built as long as the New York dry docks can accommodate. The change in style of engine from the compound beam to compound double inclined engine is made to increase the stability of the vessel, for, while the Puritan cannot be excelled as a comfortable sea boat, it was found that to give the new boat the increased power desired would make the weight of beam and upper part of engine greater than the increase in stability of the new hull would safely permit. The double inclined engine has other advantages for a vessel of this size. It has practically no centers, and the use of an enormous low pressure cylinder is avoided. The change of boilers is made to give a greater range of working pressure. The change in the position of the dining room is one of the improvements always sought by the management of the line for the pleasure and comfort of its patrons. We give below the general dimensions and other particulars: Contractors and engine builders, W. & A. Fletcher Co., Hoboken, N. J.; hull builders, the Delaware River Iron Shipbuilding & Engine Works, Chester, Pa.; joiner, William Rowland, New York. Hull: length on l. w. l., 523.5 feet; length over all, 440.5 feet; beam of hull, 52½ feet; beam over guards, 92½ feet; mean draft, light, 12 feet; displacement, light, 4,550 tons; cargo capacity, 800 tons; passenger and crew capacity, 1,400.

Engine—Type, compound double inclined; number of cylinders, 4; 2 H. P. cylinders, 51 inches diameter; two L. P. cylinders, 95 inches diameter; stroke, 132 inches; revolutions for full power, 25; indicated horse, 8,000; air

dry dock, where, after lying forty-eight hours and being hauled out, not a drop of water was found to have entered the inner hull. As a synopsis of the construction of the present addition to the above fleet, may be mentioned the following: The center keelson or backbone consists of a steel plate 42 inches deep, connected to the double plate keel by two strong angle bars, and to the floor stringer plates, also double, in the same manner. On each side of this keelson are five longitudinals extending the whole length of the vessel, the third one from center being from 42 inches to 36 inches as their position approaches the sides of the boat; the margin water tight. These longitudinals vary in depth; plate bounding the outer edge of the water bottom is 24 inches wide, and is made water tight by stapling around the frames, the reverse bars being cut at this point. Above the water bottom the frame of the vessel consists simply of the two angles, frame and reverse bar, riveted together. Midway between the margin plate and deck stringer is a side stringer 27 inches wide, supported by gussets on alternate frames. The gunwale structure of the vessel consists of a lodger plate secured to frames by gussets, and upon which the main deck beams (of I section) are landed. This lodger plate is the depth of the beams (which amidships are 12 inches deep) below the deck stringer proper, this latter being a string plate extending over the gunwale on the outside to take the guard beams, and extending inboard on the beams to take the deck. The proportion of stringer on the deck to that overhanging the gunwale is as 3 to 1.

The transverse frames are 30 inches, center to center, strongly riveted to the center keelson and to the longitudinals (which pass through them), and 42 inches deep within the double bottom amidships. They are made up of the bracket and skeleton construction alternating. At distances of about thirty feet water tight floors are inserted as boundaries for the water tight compartments. Directly under the engine keelson all the floors are made on the bracket order with more metal left in them, top and bottom, than generally, throughout the double hull, to insure absolute freedom from motion in the bottom when engines are working. As already stated, the deck beams of this vessel are of I section, and are

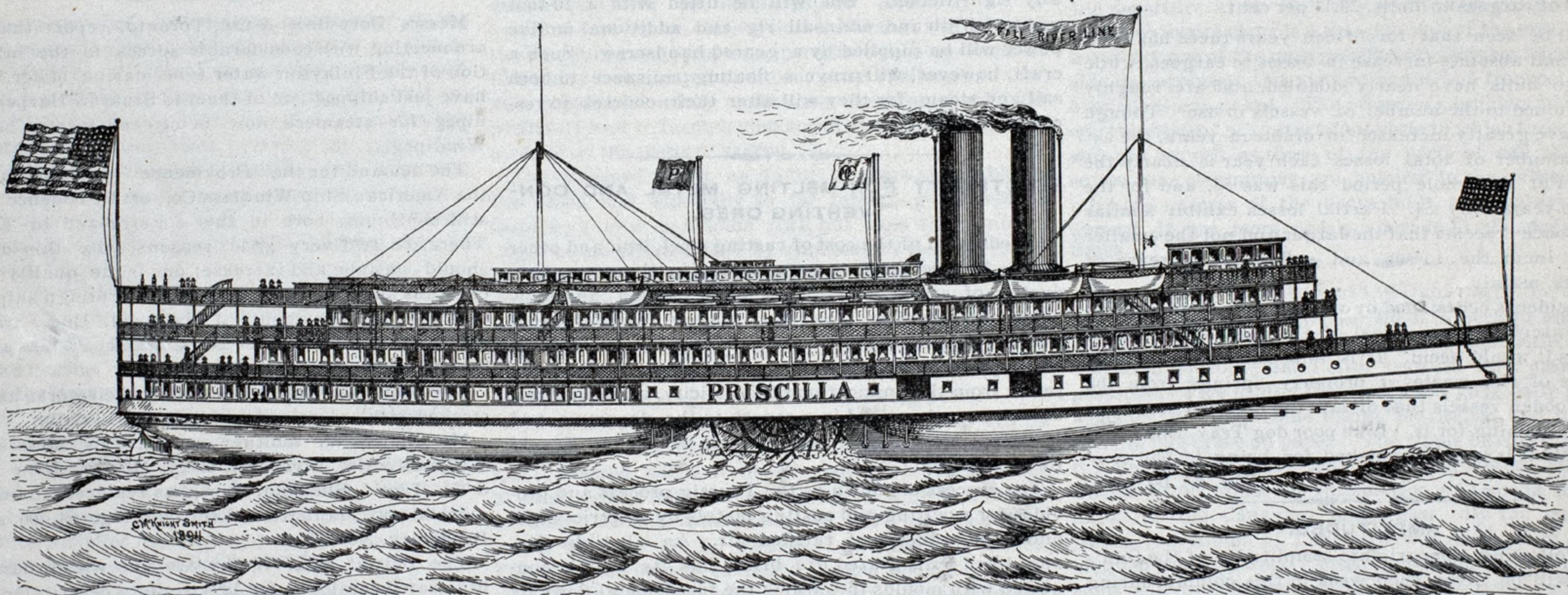
also sent telegrams to the Secretary of war urging him to forbid the bridge at that place. The coal trade Commercial Agency is also expected to take action against the bridge at their next regular meeting. Congressman McGann sent word that the members of Congress from Chicago would call upon Secretary Lamont in a body and use their influence against the structure being placed where it is now proposed.

SCHOONER WINSLOW LIBELED.

J. Henry Norton and Edward S. Worthington, of Chicago, libeled the schooner Richard Winslow for \$2,202.64 on Monday, at Milwaukee. On Nov. 16, the libellants shipped 59,779 bushels of corn in the schooner from Chicago to Buffalo. The cargo was delivered in a wet condition, so that 820 bushels were worthless and the rest of the cargo was said to be more or less damaged. The bill alleges that the vessel was unseaworthy and that it was improperly handled in port. The estate of Louisa Wex, of Buffalo, bonded the boat and will contest the claim.

The schooner encountered heavy weather on the trip down, but a survey demonstrated that she had suffered no damage. A second survey was held this spring before discharging the cargo and a third after the discovery of heated grain and in each case the vessel was pronounced all right and accordingly received her freight. The shippers of the corn, however, are not satisfied and propose to hold the Winslow responsible.

A NOVEL proceeding was enacted at St. Louis recently at a special meeting of Harbor No. 28, United States Association of Pilots. It was the formal initiation of Miss Callie French. Headquarters were crowded with pilots from all parts of the St. Louis district. Miss French is 22 years old and knows the Ohio and Mississippi rivers thoroughly all the way from Cincinnati to



THE FALL RIVER LINE "PRISCILLA," (STEEL) BUILT BY THE W. & A. FLETCHER CO., HOBOKEN, N. J.

pumps, type, connected; circulating pumps, type, independent; condenser, type, surface; condenser, cooling surface, 16,000 square feet. Wheels—Feathering wheels, diameter over buckets, 35 feet; width of buckets, 14 feet; depth of buckets, 5 feet; immersion of buckets, light, 7 feet. Boilers—Number of boilers, 10; type of boilers, Scotch single ended; mean diameter, 14 feet; length of boilers, 14 feet 6 inches; number of furnaces 30; type of furnaces, corrugated; inside diameter of furnaces, 44 inches; total grate surface, 850 square feet; total heating surface, 24,000 square feet; built for working pressure of steam, 150 pounds per square inch; arranged for natural or forced draft.

The Priscilla, like the latest additions to this line, with the exception of the Pilgrim, is built of steel, and it has been the intention of both owners and builders to make the proposed addition to the line the greatest success in point of fineness of lines, power, speed, capacity and elegance yet obtainable, which, when compared with the palatial steamer Puritan, was no mean task. Like the three first named boats, the Priscilla is built on the double hull, longitudinal, cellular system, with a length of double bottom of 340 feet, having in all fifty-two compartments, besides which, the hull is sub-divided above the double hull and at ends of vessel by means of bulkheads and flats into nine additional water tight spaces, making in all sixty-one. The freeboard of this handsome boat is sufficient to float her with any ten of the compartments within the double bottom full of water, or with any two of the compartments above the double bottom filled.

As an instance of the non-sinkable condition of these vessels, two examples can be cited apropos of the present description. The first case happened to the Pilgrim. While coming down East river on a remarkably low tide, she struck a rock, which tore through the outer hull for a length of 85 feet by a width of 4 feet. The inner hull, being uninjured, enabled the Pilgrim to proceed to her dock and discharge her passengers and freight. The second accident of this character happened to the steamer Puritan in Hell Gate, where, in trying to keep out of the way of other boats, she was forced over too far and tore her bilge against the rocks for a length of 120 feet by a width of 5 feet. After discharging passengers and freight, she proceeded to the

not, as is customarily done, riveted directly to the frame by welded knees. As the riveting of these beams to alternate frames would make too great a shift, the builders have adopted the shelf or lodger plate construction. The shelf, being strongly secured to every frame by gusset plates, makes a good and substantial support for the beam end, and as they are 45 inches apart, every other one comes over and is riveted to a frame which extends through and above the lodger plate. Besides, as the ends of the beams come between the lodger and deck-stringer plates, they are securely riveted to both through top and bottom flanges. There are other features in the construction of this boat which show a judicious use of material, enabling the greatest strength to be obtained on the least practicable weight.

The cargo capacity is 800 tons, which is carried on the main deck forward of the engine space. The draught, when loaded, is expected to be about 13 feet, and mean displacement 5,200 tons. The joiner work and decorations will display the highest degree of excellence, surpassing, if possible, the Puritan in this respect. There are about 350 rooms for passengers, besides those for the officers and crew space. In outward appearance the Priscilla resembles the Puritan, having two steel masts and two funnels. Stevenson Taylor, W. H. Fletcher and A. Fletcher, Jr., deserve praise and credit for their work in connection with this handsome specimen of naval architecture and engineering.

OPPOSE ANOTHER BRIDGE.

Every business in Chicago that is connected in any way with the marine interests is opposed to the new bridge of the Northwestern Elevated Railway being placed over the river between Clark and Wells streets. W. P. Ketcham, president of the Lumbermen's Association of Chicago, has sent a telegram to Secretary Lamont protesting against the bridge in that place as an impediment to navigation, and recommending that either Clark or Wells street bridges be double-decked to allow the railroad to cross the river. The Chicago general agents of marine insurance companies have

New Orleans. She spent fifteen years on the river with her father, Capt. C. O. French.

PROPOSALS.

TREASURY DEPARTMENT, Office of General Superintendent U. S. Life Saving Service, Washington, D. C., May 1, 1894. Sealed proposals will be received at this office until 2 o'clock p. m. of Thursday, the 31st day of May, 1894, for furnishing supplies required for use of the Life Saving Service for the fiscal year ending June 30, 1895; the supplies to be delivered at such points in New York City, Grand Haven, Mich., and San Francisco, Cal., as may be required, and in the quantities named in the specifications. The supplies needed consist of beds and bedding, blocks and sheaves, cordage, crockery, furniture, hardware, lamps, lanterns, etc.; lumber, medicines, etc.; paints, oils, etc.; ship chandlery, stoves, etc.; tools and miscellaneous articles, all of which are enumerated in the specifications attached to the form of bid, etc., which may be obtained upon application to this office, or to the Inspector of Life Saving Stations, 24 State street, New York City; Superintendent Eleventh Life Saving District, Grand Haven, Mich., and Superintendent Twelfth Life Saving District, Appraisers' New Building, San Francisco, Cal. Envelopes containing proposals should be addressed to the "General Superintendent U. S. Life Saving Service, Washington, D. C.," and marked on the outside "Proposals for Annual Supplies." The right is reserved to reject any or all bids and to waive defects, if deemed for the interests of the government. S. I. KIMBALL, General Superintendent.

WILLIAM L. BROWN,
President.

WALTER F. COBB,
Vice President and Treasurer.

W. I. BABCOCK, Manager.
O. R. SINCLAIR, Secretary and Asst. Treas.

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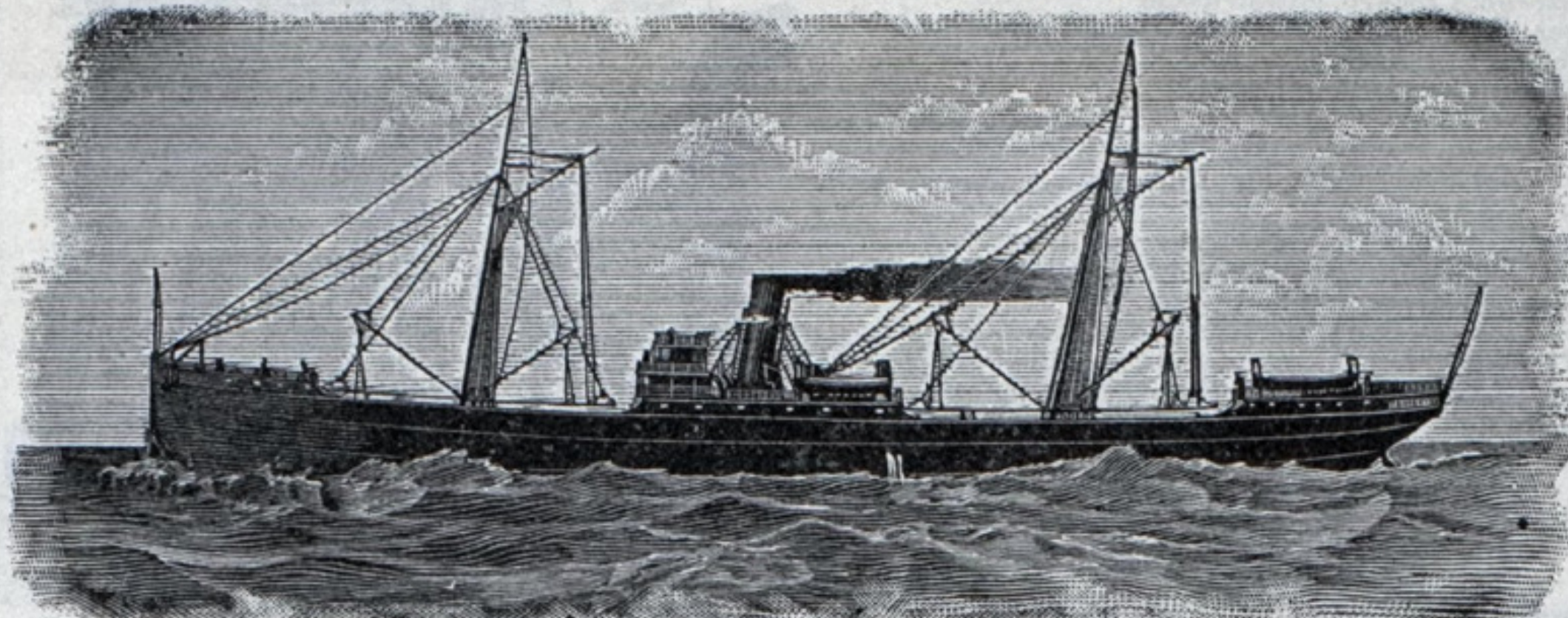
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CAPITAL, Paid up in Cash, - - - \$3,000,000.00
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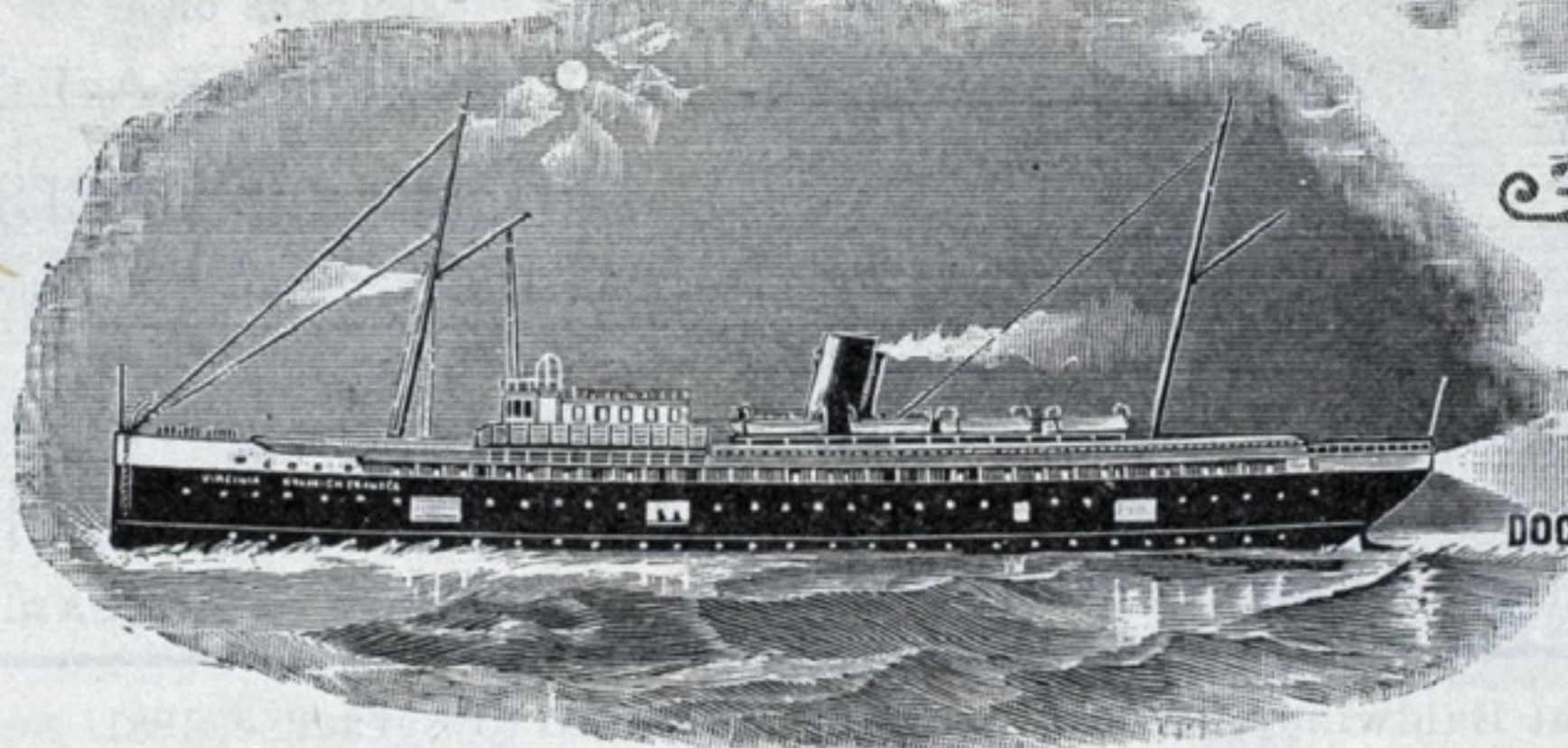
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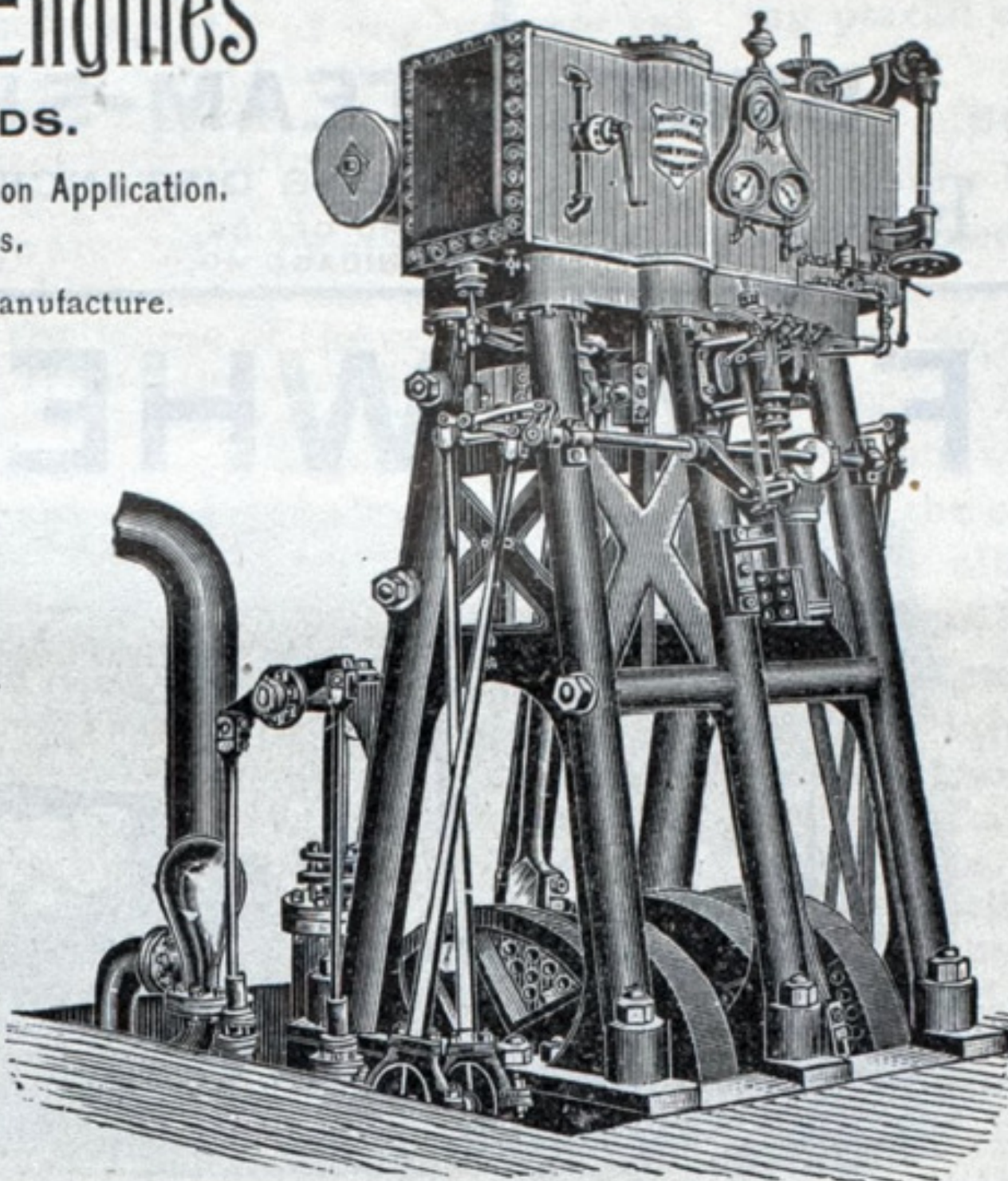
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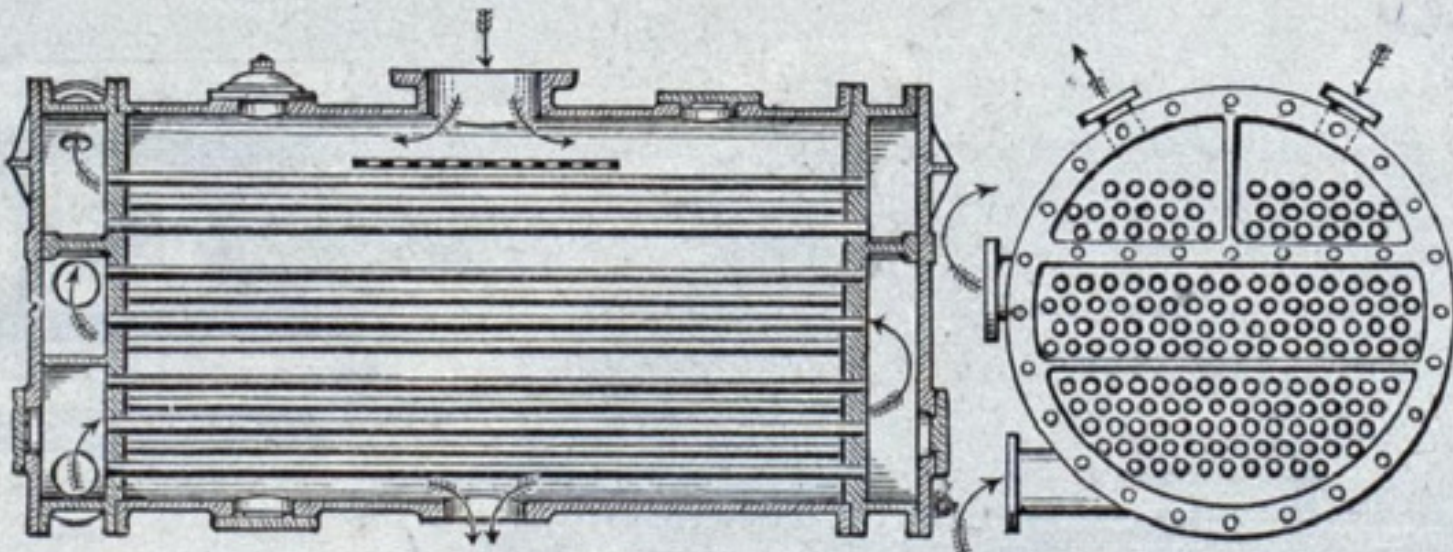
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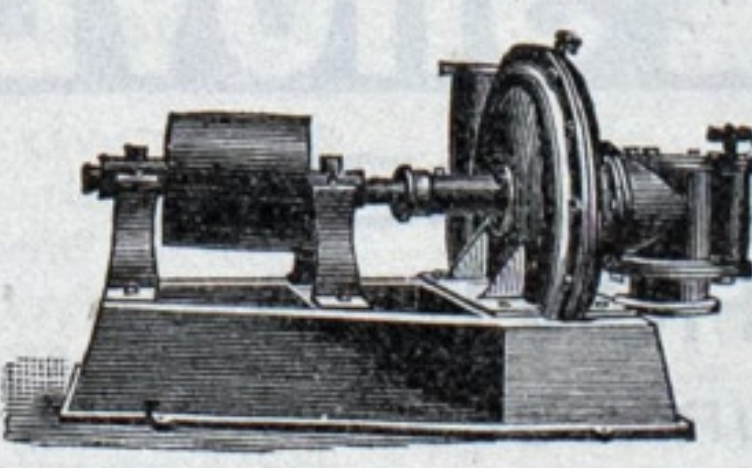
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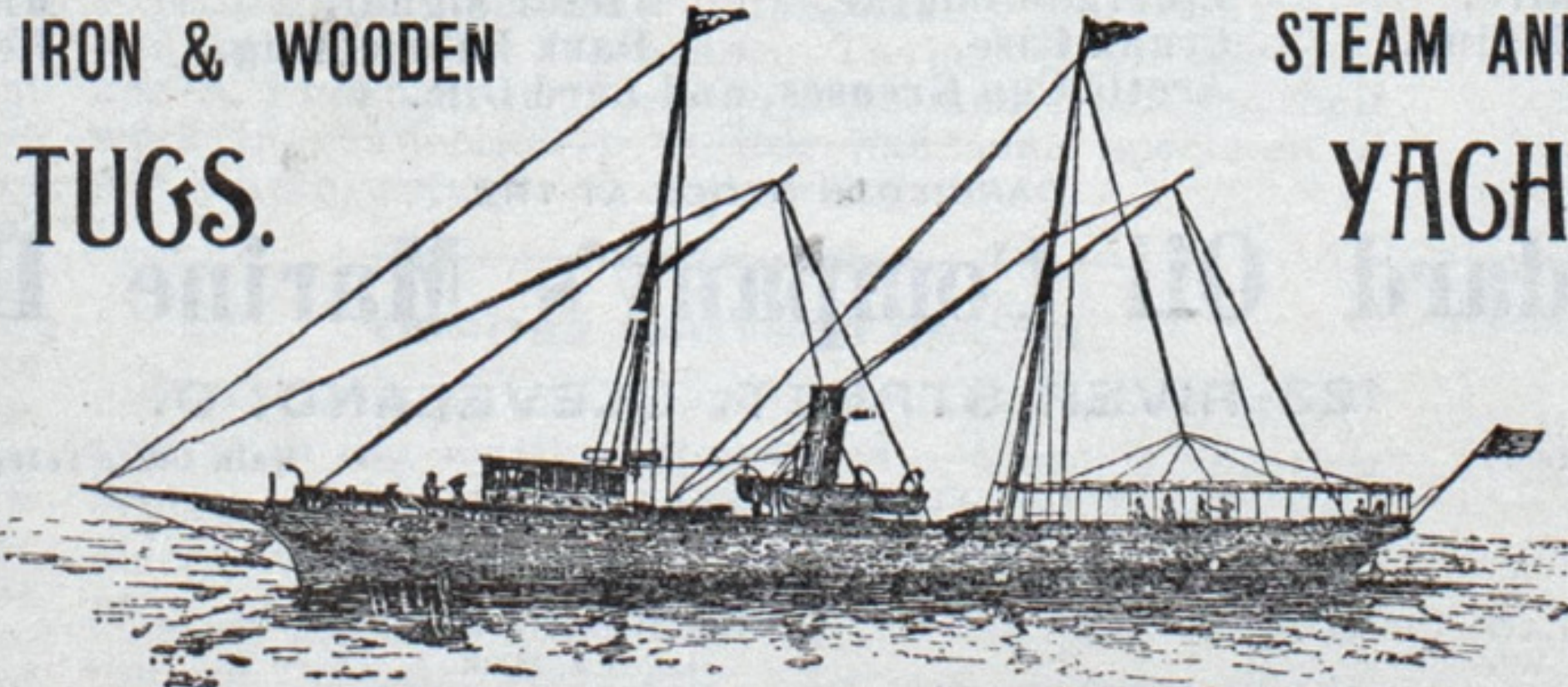
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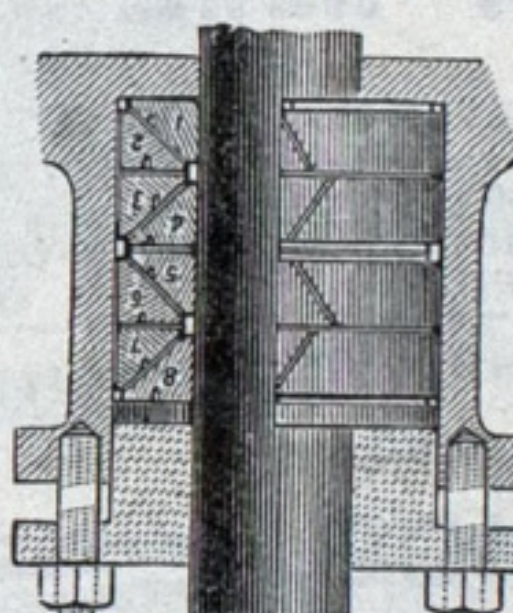
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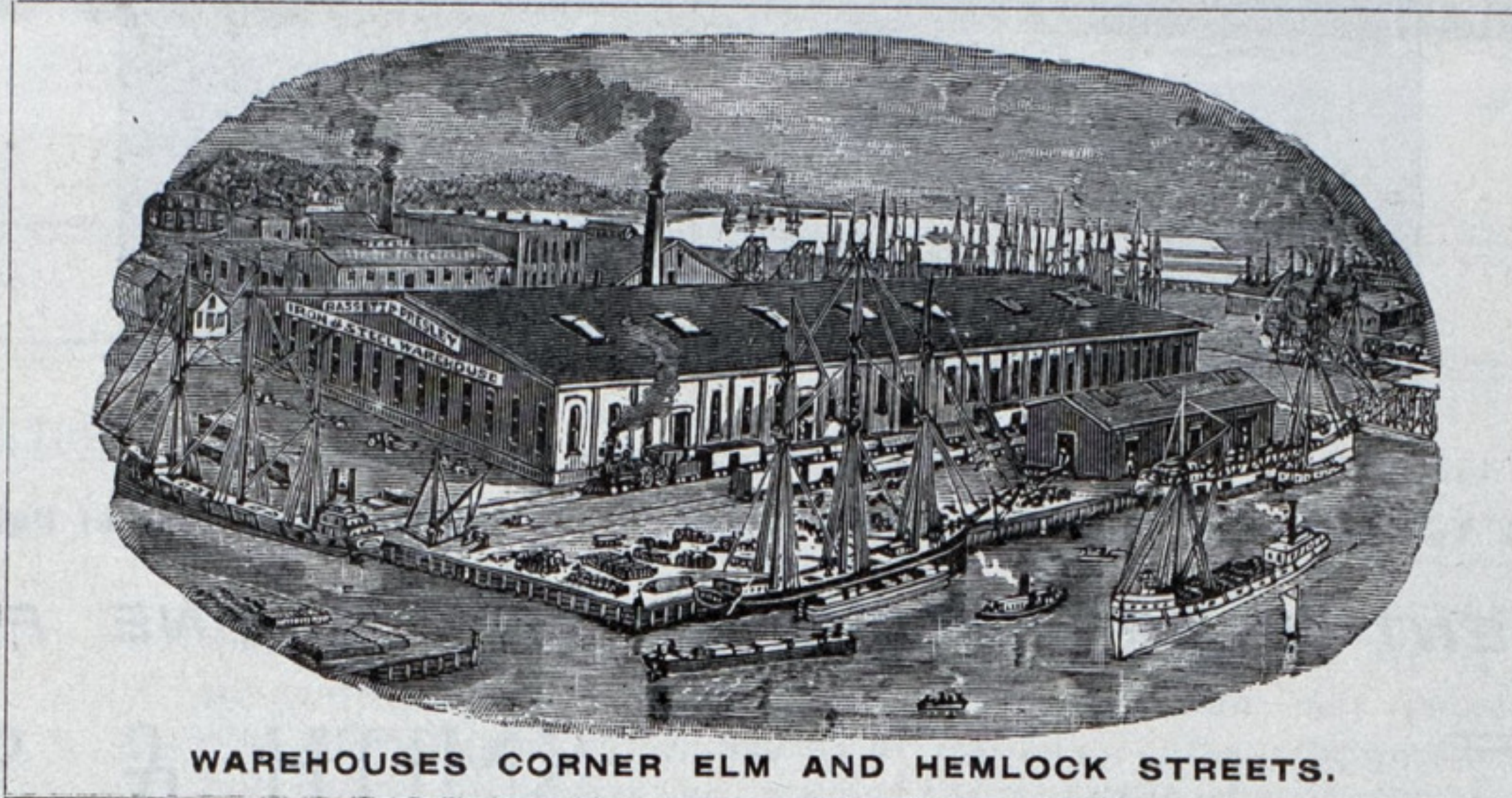
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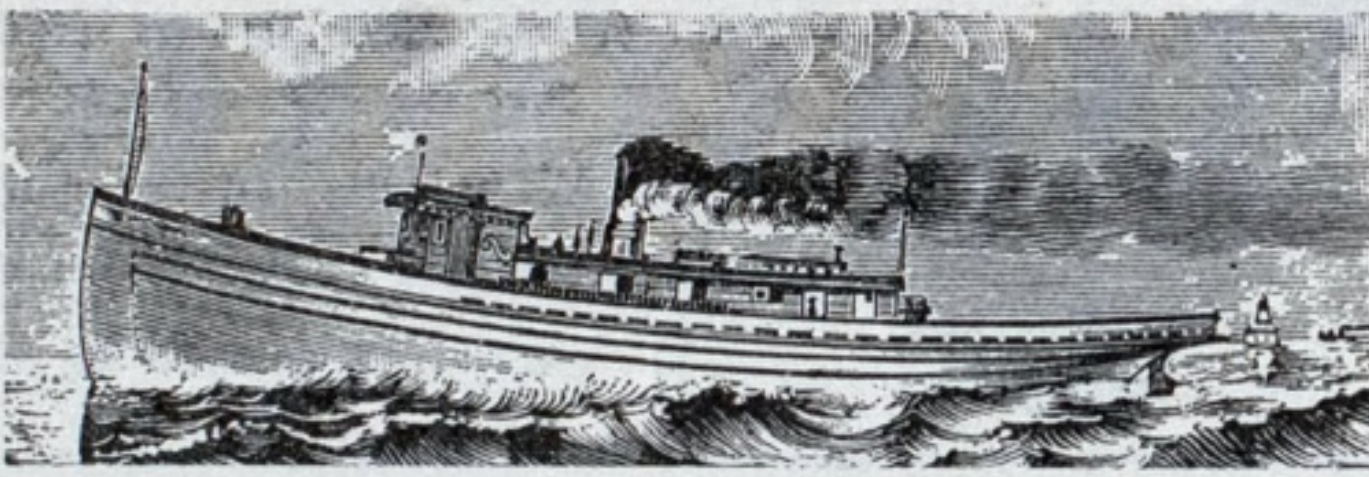
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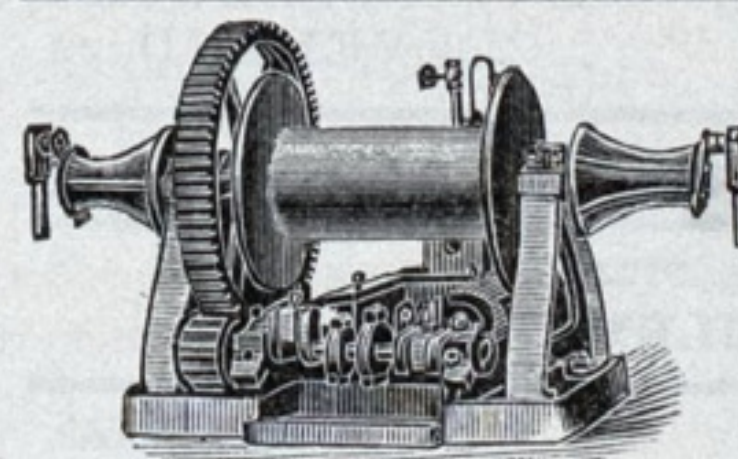
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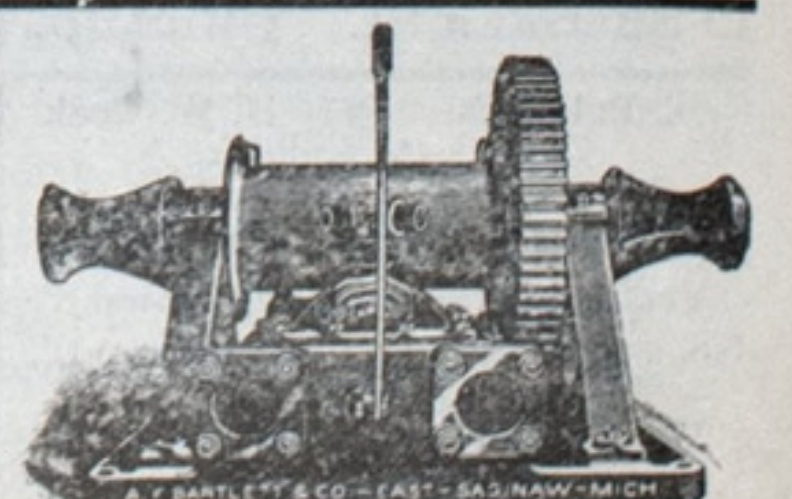
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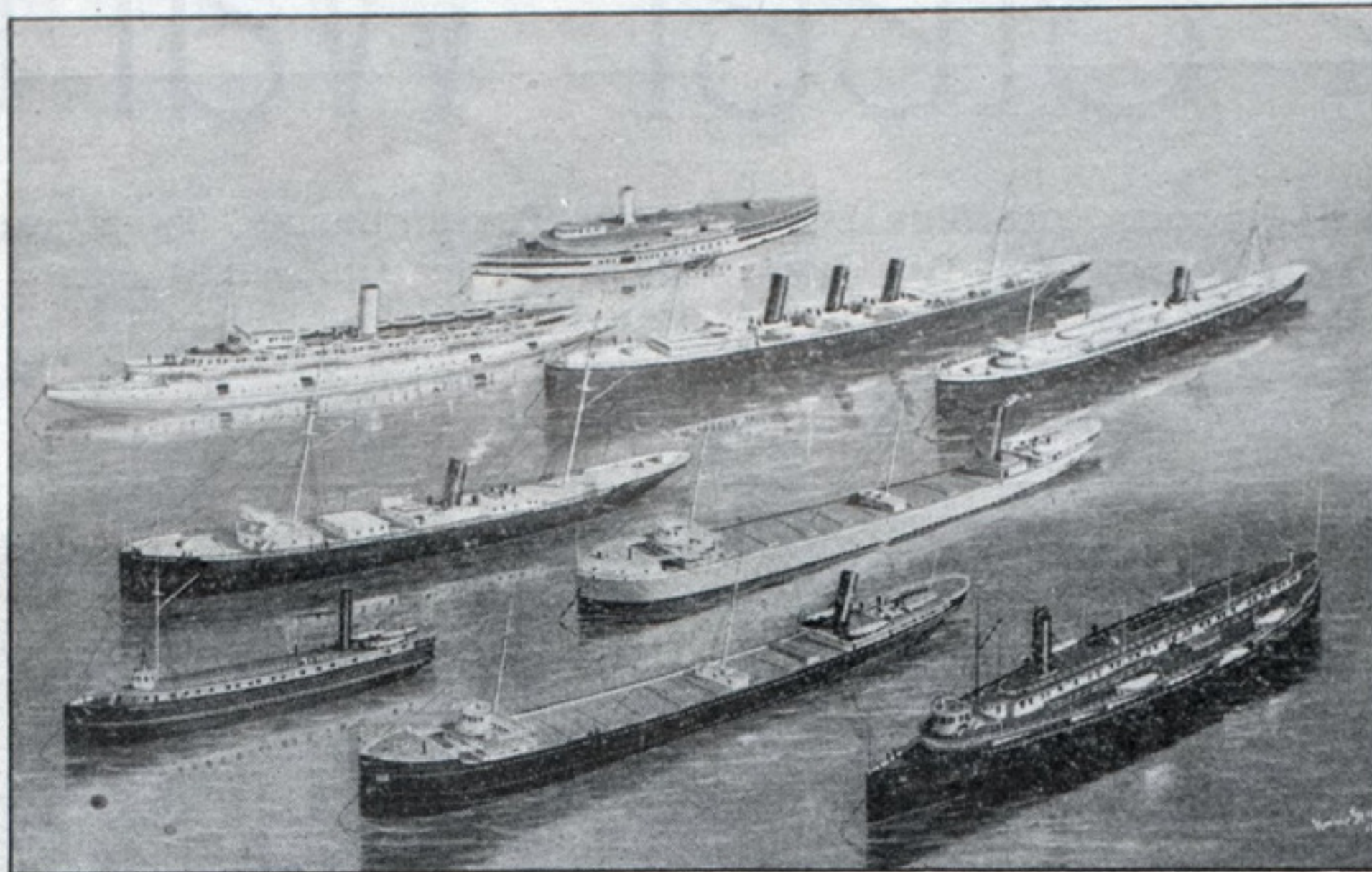
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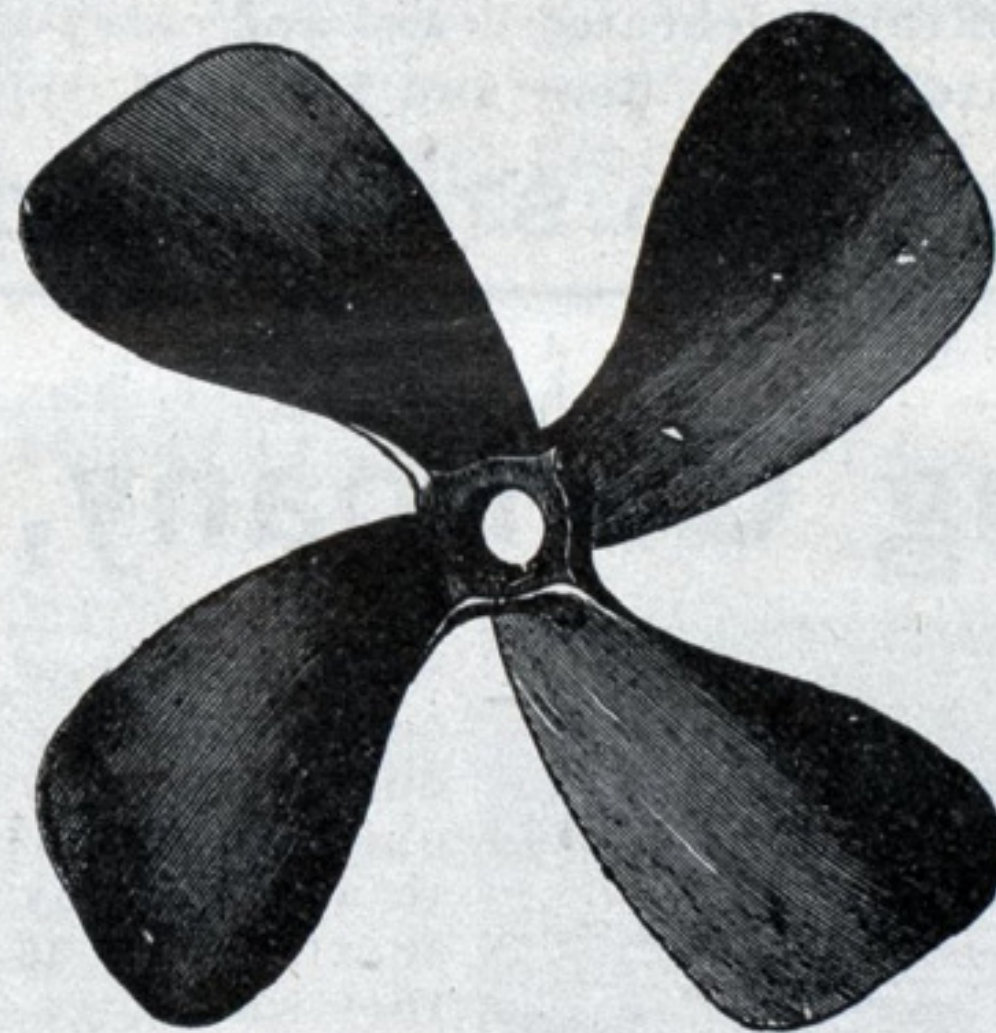
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Width of

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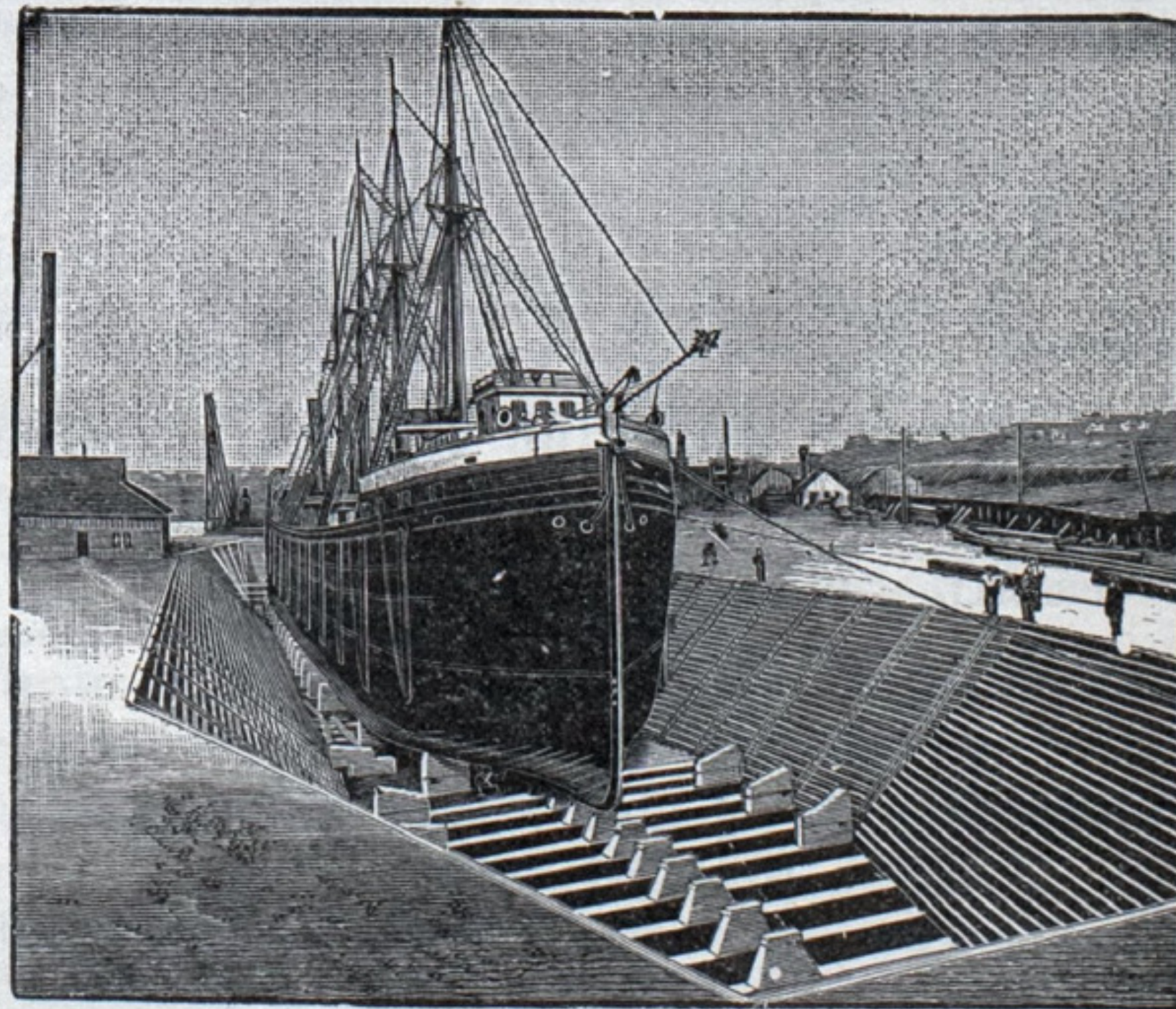
50 ft.

Depth of

Water on

Keel Blocks

16 ft.



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Keel Blocks

300 ft.

Width of

Gate

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Depth of

Water on

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